T. E. OSBORN.

STEWARTS
AND
LLOYDS
(AUSTRALIA)
LIMITED

MELBOURNE
GRANT STREET

Registered Office:
41 OSWALD STREET, GLASGOW

POCKET CATALOGUE

L & L

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Jan. 1926.
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STEWARTS AND LLOYDS

(AUSTRALIA)

LIMITED

TRADE MARK

TRADE MARK

L&L

ALL KINDS OF

WROUGHT IRON and STEEL TUBES.

Lapwelded, Buttwelded, and Solid Drawn.

ALSO

ALL THE NECESSARY FITTINGS

FOR SAME.

SIEMENS-MARTIN STEEL PLATES

FOR ALL PURPOSES.

STEEL CASTINGS.

SUBJECT TO REVISION.

(DATE OF ISSUE, 1913.)

STEWARTS AND LLOYDS
(AUSTRALIA)
LIMITED

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Address: Office and Store, WATTLE STREET.
Post Office Box: No. 1086 G.P.O.
Telephone Nos. Glebe 706-707-708.
Telegraphic Address: "Stewarts Lloyds, Sydney."
Cable Address: "Lapweld, Sydney."

MELBOURNE

Address: Office and Store, GRANT STREET.
Post Office Box: No. 319 G.P.O.
Telephone Nos. 1307 and 6888.
Telegraphic Address: "Stewarts Lloyds, Melbourne."
Cable Address: "Tubes, Melbourne."

BRISBANE

Address: Office and Store, EARL'S COURT, ANN STREET.
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Telephone Nos. 2782 and 1864.
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Office and Store: 886 HAY STREET

P.O. Box, 18 Telephone Nos. 617 & 1954 Central

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Mines Chambers, BOULDER ROAD

P.O. Box, 261 Telephone No. 369

Telegraphic Address: "TUBES, KALGOORLIE."

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Telephone No. 459 Fremantle

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Agents:

Messrs Geo. P. Harris, Scarfe & Co. Ltd.

GAWLER PLACE

REGISTERED OFFICE:

41 OSWALD STREET, GLASGOW

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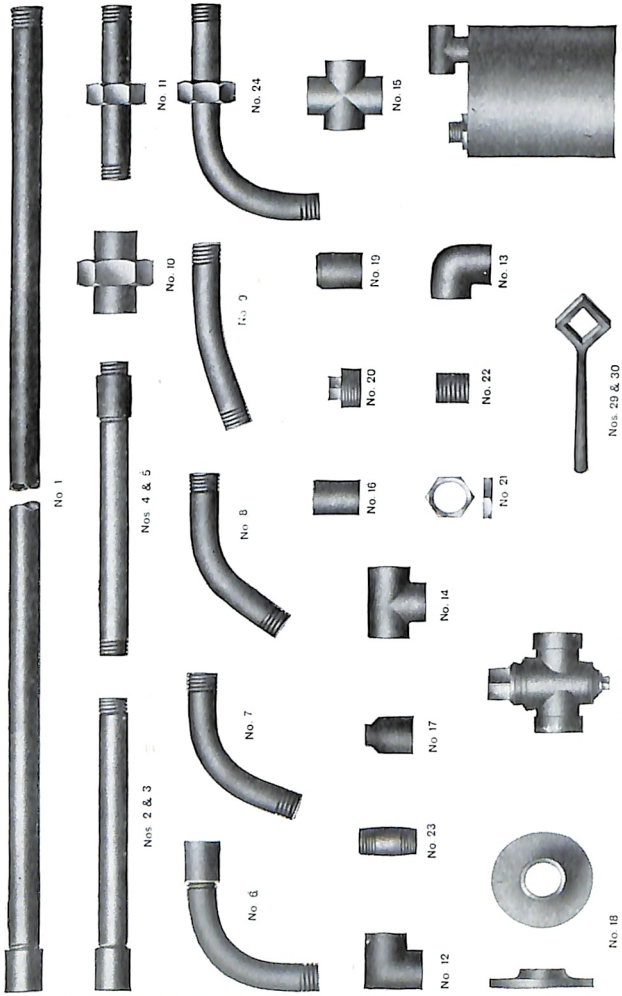
SCREWED TUBES AND FITTINGS.

WROUGHT IRON TUBES AND FITTINGS

FOR GAS, WATER AND STEAM.



For Angles of Springs and dimensions of Fittings generally, see pages 12 and 13.

TRADE PRICE LIST,—See Notes on following pages.

WROUGHT IRON TUBES AND FITTINGS

FOR GAS, WATER AND STEAM.

	No.	INTERNAL DIAMS. in Inches / EXTERNAL DIAMS. "	1/8 & 1/4 / 13/32 and 17/32	3/8 / 7/8	1/2 / 1 1/16	3/4	1 / 1 11/32	1 1/4 / 1 11/16	1 1/2 / 1 29/32	1 3/4 / 2 5/32	2 / 2 3/8	2 1/4	2 1/2	2 3/4	3	3 1/2	4	4 1/2	5	5 1/2	6
TUBES.	1	Tubes, 2 ft. & up in length, per ft	3½d	4d	5d	6½d	9d	1/.	1/4	1/8	1/10	2/6	2/9	3/.	3/3	4/3	4/9	5/6	6/.	6/9	7/6
	2	Pieces 12 to 23½ ins. long, each	9d	10d	1/1	1/4	1/10	2/6	3/4	4/3	4/9	6/9	8/.	9/.	10/.	13/6	15/6	21/.	24/.	28/6	32/6
	3	Do. 4 to 11½ " " "	5½d	6d	8d	10d	1/2	1/6	2/.	2/7	3/.	4/3	5/3	6/.	6/9	9/3	10/9	15/6	18/.	21/9	25/3
	4	Longscrews 12 to 23½ " "	10d	11d	1/2	1/5	2/.	2/8	3/7	4/8	5/3	7/6	9/.	10/.	11/6	15/6	17/.	23/.	26/6	31/6	35/6
	5	Do. 3 to 11½ " "	6½d	7d	9d	11d	1/3	1/8	2/3	3/.	3/3	4/8	6/3	6/7	8/.	10/9	12/3	17/.	20/.	24/.	28/.
	23	Barrel Nipples ... ... "	5d	5d	6d	7d	9d	1/.	1/4	1/8	1/9	2/6	3/.	3/6	4/.	6/.	7/.	10/.	12/6	15/.	20/.
	6	Bends ... ... "	7d	8d	10d	1/.	1/6	2/6	3/.	4/.	5/.	8/6	12/.	15/.	18/.	25/.	32/6	80/	105/	135/	150/
	7, 8, 9	Springs, Not Socketed ... "	5d	6d	7d	9d	1/1½	1/11½	2/3½	3/1	3/11	6/9	9/6	12/.	14/6	20/.	26/6	70/.	93/.	120/.	132/.
FITTINGS.	10, 11	[10]Socket Union[11]Pipe Union ea.	2/.	2/6	3/.	4/.	5/6	6/9	8/.	9/.	10/.	15/.	17/6	20/.	22/6	27/6	35/.	48/.	66/.	84/.	105/.
	12	Elbows, Square ... ... each	8½d	9d	10d	1/.	1/4	1/10	2/5	3/.	3/10	6/3	9/.	11/6	14/.	22/.	28/.	75/.	95/.	120/.	150/.
	13	Elbows, Round ... ... "	9½d	11d	1/.	1/3	1/6	2/1	2/7	3/6	4/6	6/9	10/.	13/.	17/.	25/.	32/.	75/.	95/.	120/.	150/.
	14	Tees ... ... "	9d	10d	11d	1/2	1/5	2/.	2/6	3/2	4/3	6/6	9/6	12/6	16/6	24/.	30/.	78/.	98/.	125/.	155/.
	15	Crosses ... ... "	1/4	1/6	1/11	2/4	3/.	4/.	4/10	6/.	7/9	14/.	21/4	28/.	40/.	56/.	66/8	175/	220/	280/	350/.
	16	Sockets, Plain ... ... "	2d	2d	3d	3½d	4½d	6½d	8½d	11d	1/1	1/9	2/6	3/.	3/6	5/.	6/.	10/.	12/.	15/.	18/.
	17	Do. Diminished ... "	3d	4d	5d	6d	7d	9d	11d	1/2	1/4	2/3	3/3	4/.	5/.	7/.	9/.	25/.	35/.	45/.	55/.
	18	Flanges ... ... "	9d	10d	1/.	1/2	1/4	1/9	2/.	2/3	2/9	4/.	5/.	6/9	8/6	10/.	11/6	16/.	18/.	23/.	27/.
	19	Caps ... ... "	3½d	3½d	5d	6d	8d	1/.	1/3	1/7	2/.	3/.	4/4	5/3	6/.	9/9	10/6	25/.	30/.	37/6	45/.
	20	Plugs ... ... "	3d	3d	4d	5d	6d	8d	10d	1/.	1/3	2/.	2/6	3/6	4/9	7/.	10/.	22/.	30/.	39/.	48/.
	21	Backnuts ... ... "	2d	2d	3d	3½d	5d	6d	8d	10d	1/1	1/9	2/3	3/.	3/6	4/6	5/6	14/.	18/.	21/.	26/.
	22	Nipples ... ... "	2d	2d	3d	3½d	4d	6d	8d	10d	1/.	1/9	2/3	3/.	3/6	4/6	5/6	14/.	18/.	21/.	26/.
	24	Union Bends ... ... "	2/6	3/.	3/9	5/.	6/3	8/6	10/.	11/6	13/6	21/.	27/.	32/.	37/.	49/.	58/.	78/.	100/	135/.	160/.
	25	Main Cocks ... ... ,	2/3	2/9	3/6	4/6	6/6	8/6	11/.	14/.	18/.	27/.	40/.	50/.	60/.	85/.	110/.	210/.	270/.	360/.	420/.
	26	Do. with Brass Plugs "	...	7/.	8/9	11/6	16/.	21/6	28/.	35/.	45/.	68/.	100/.	112/.	125/.	212/.	250/.	360/.	450/.	570/.	660/.
	27	Round Way Cocks ... "	...	3/6	4/.	5/6	7/6	10/.	13/.	17/6	22/.	38/.	60/.	65/.	75/.	120/.	160/.	...	...	...	...
	28	Do. with Brass Plugs "	...	10/6	12/.	16/6	22/6	30/.	39/.	52/6	66/.	114/.	180/.	195/.	225/.	360/.	480/.	...	...	...	...
	29	Cock Spanners, Wrought "	...	1/6	1/8	2/2	2/8	3/2	3/6	4/.	4/3	4/9	6/.	7/6	9/.	12/.	14/.	16/.	19/.	22/.	24/.
	30	Do. Malleable Cast "	...	1/.	1/4	1/8	2/.	2/4	3/.	3/6	4/.	4/9	6/.	7/6	9/.	12/.	14/.	16/.	19/.	22/.	24/.
	31	Syphon Boxes — 1 Quart "	...	...	22/9	23/.	23/4	24/.	24/6	25/2	26/3	28/6	...	...	...	...	...	...	...	...	...
	32	Syphon Boxes — 2 Quarts "	...	...	...	27/.	27/4	28/.	28/6	29/2	30/3	32/6	35/6	38/6	42/6	...	...	...	...	...	...
	33	Syphon Boxes — 3 Quarts "	...	...	...	32/.	32/4	33/.	33/6	34/2	35/3	37/6	40/6	43/6	47/6	55/6	61/6	...	...	...	...
	34	Syphon Boxes — 4 Quarts "	...	...	...	38/.	38/4	39/.	39/6	40/2	41/3	43/6	46/6	49/6	53/6	61/6	67/6	...	...	...	...

SCREWED TUBES AND FITTINGS

7″ TO 12″ DIAMETER

No.	INTERNAL DIAM. ins.	7	8	9	10	12
	Tubes					
3	Shortpieces, 6 to 11½″	42/.	52/.	—	—	—
5	Longscrews, 6 to 11½″	46/.	58/.	—	—	—
6	Bends	210/.	328/.	348/.	504/.	622/.
8	Springs	182/.	284/.	348/.	504/	622/.
23	Round Elbows, screwed male ...	168/.	200/.	240/.	272/.	340/.
	Round Elbows, screwed female ...	186/.	224/.	270/.	306/.	380/.
13	Tees, Equal, screwed male ...	208/.	250/.	296/.	330/.	404/.
	Tees, Equal, screwed female ...	232/.	286/.	338/.	376/.	466/.
14	Crosses, Equal, screwed male ...	354/.	428/.	496/.	560/.	684/.
	Crosses, Equal, screwed female ...	388/.	476/.	556/.	624/.	768/.
15	Sockets	20/.	26/.	60/.	74/.	102/.
16	Sockets. Diminished	50/.	64/.	80/.	92/.	126/.
17	Flanges	36/.	46/.	64/.	80/.	110/.
18	Caps	62/.	78/.	—	—	—
19	Plugs, Cast-iron	18/.	22/.	—	—	—
20	Nuts	18/.	24/.	—	—	—
21	Nipples	14/.	16/.	38/.	48/.	60/.

Notes on Bends and Bending.

Wrought Iron or Mild Steel Lapwelded Tubes can be safely bent, if required, to a radius not less than 3 times their bore, provided they are thick enough to withstand the collapsing or buckling action, which tends to take place during the process.

Tubes to be bent should be packed with sand or some other non-expansive substance which will withstand the required heat, and will tend to reduce the liability to flatten.

Bends can be made to a shorter radius than 3 times their bore, but when so required it is suggested that particulars, with drawing, be submitted to us before deciding.

Bends above 8″, being made by a special process, can be bent to any reasonable radius.

Nothing is more effective for expansion purposes than Bent Tubes, which, however, should not be of too great a sweep, and a radius of four times the bore of the tube will be found satisfactory, not only for elasticity, but as permitting a free flow of the contents of tube.

The length of the leg or centre to face dimension of a Bend should exceed the radius by rather more than the screwed part—say by about half the bore of the Bend.

Notes on Trade Price List.

Tubes, screwed and socketed, supplied in random or exact lengths from 2 to 12 feet, and all exact lengths over 12 feet, are charged 2½ per cent. less gross discount.

Tubes, not screwed or socketed, supplied in random lengths of any length, are charged at the current discount, with an extra allowance of 2½ per cent. off the net.

Tubes, not screwed or socketed, cut to exact lengths of any length, are charged at the same discount as tubes screwed and socketed in random lengths.

Tubes screwed and sent without sockets, are charged at the current discount, with an extra allowance of 1¼ per cent. off the net.

Tubes and Fittings coated inside and outside with Dr Angus Smith's solution, are charged at 2½ per cent. less gross discount.

Tubes and Fittings painted red will be charged at Steam Discounts.

Tubes and Fittings painted blue will be charged at Water Discounts.

All short lengths, 4 inches to 2 feet, whether random or exact, to be considered pieces, and sold at gross prices of pieces, less same discounts as Tubes of random lengths.

Tubes of intermediate diameters are charged at the list price of the next larger sizes.

Springs, if socketed, will be charged extra for the sockets at list prices.

Notes on Tubes.

The extras and allowances above detailed apply only for Indent deliveries. The corresponding rates for exact lengths cut and screwed from stock in our Australian Workshops, will be quoted on receipt of particulars.

Tubes screwed and socketed with right and left hand threads are charged at 2½ per cent. less gross discount.

Tubes screwed to butt with rounded sockets are charged at 2½ per cent. less gross discount.

Galvanizing renders Tubes extremely durable but somewhat brittle, and the iron is not suitable for bending after being galvanized. The Zinc used in Galvanizing being entirely free from Lead, there can be no danger of lead-poisoning.

All Tubes are carefully tested by Hydraulic pressure.

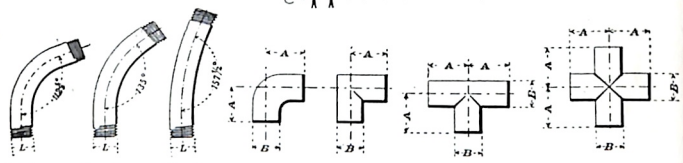
Notes on Tubes—CONTINUED.

DIMENSIONS OF SCREWED AND SOCKETED TUBES.

INTERNAL DIA., Nominal, ins.	EXTERNL DIA., Measurement, ins.	Length of Screw on Tubes, ins.	Pitch of Screw, No. of Threads per in.
1/8	13/32	3/8	28
1/4	17/32	3/8	19
3/8	11/16	1/2	19
1/2	27/32	5/8	14
3/4	1 1/16	3/4	14
1	1 11/32	7/8	11
1 1/4	1 11/16	7/8	11
1 1/2	1 29/32	1	11
1 3/4	2 5/32	1	11
2	2 3/8	1 1/8	11
2 1/4	2 5/8	1 1/8	11
2 1/2	3	1 1/4	11
2 3/4	3 1/4	1 1/4	11
3	3 1/2	1 3/8	11
3 1/2	4	1 1/2	11
4	4 1/2	1 5/8	11
4 1/2	5	1 5/8	11
5	5 1/2	1 3/4	11
5 1/2	6	1 3/4	11
6	6 1/2	2	11

The above dimensions are subject to the usual working allowances.

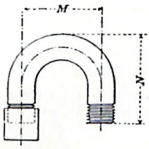
Approximate Dimensions

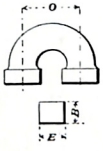


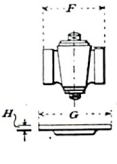
			SIZE, ins.	1/8	1/4	3/8	1/2	3/4
A	Centre to Face of Elbows, Tees & Crosses	GAS	ins.	3/4	7/8	15/16	1 1/8	1 3/8
		STEAM	"	7/8	15/16	1	1 1/4	1 1/2
B	Outside Diam. of Elbows, Tees, Crosses & Sockets	GAS	"	5/8	3/4	7/8	1 1/16	1 5/16
		STEAM	"	11/16	13/16	15/16	1 1/8	1 3/8
C	Length of Nipples ...	GAS AND STEAM...	"	1/2	5/8	3/4	7/8	1
D	Length of Barrel Nipples	GAS AND STEAM...	"	1 1/4	1 3/8	1 1/2	1 3/4	2
E	Length of Sockets ...	GAS, WATER & STEAM	"	7/8	1	1 1/8	1 1/2	1 5/8
F	Length of Cocks (Plug)	GAS	"	...	1 5/8	2 5/8	3	3 1/2
G	Diam. of Flanges ...	GAS AND STEAM...	"	2 1/4	2 1/2	3	3 1/2	4
H	Thickness of Flanges	GAS	"	1/8	1/8	5/32	3/16	7/32
		WATER...	"	...	1/4	1/4	3/8	1/2
		STEAM	"	...	3/32	1/4	1/4	1/4
Drilling	Pitch Circle ...	GAS, WATER & STEAM	"	1 5/8	1 3/4	2 1/8	2 5/8	2 7/8
	Number & Size of Bolts	GAS AND WATER	"	4 - 1/16	4 - 1/16	4 - 3/8	4 - 3/8	4 - 1/2
	Number & Size of Bolts	STEAM	"	...	4 - 1/8	4 - 3/8	4 - 3/8	4 - 1/2
J	Centre to Face of Bends	GAS AND STEAM...	"	2 1/8	2 1/2	2 7/8	3 1/4	4
K	Radii of Bends ...	GAS AND STEAM...	"	1 1/4	1 5/8	1 7/8	2 1/4	2 7/8
L	Outside Diam. of Bends & Springs	GAS AND STEAM...	"	13/32	17/32	11/16	27/32	1 1/16
Nos. 6,7,8,9	Contents of Bends & Springs	GAS AND STEAM...	"	3 3/4	4 1/4	4 7/8	5 3/8	6 5/8
M	Centre to Centre of W.I. Double Bends	STEAM	"	1 3/4	2	2 1/2	3 1/4	3 1/2
N	Centre to Face of W.I. Double Bends	STEAM	"	2	2 1/2	2 3/4	3 1/2	4
O	Centre to Centre of Malleable Double Bends	STEAM	"	...	...	...	1 1/2	1 3/4

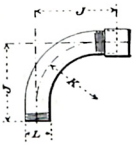
STEWARTS and LLOYDS (Australia) Limited L&L

# of Fittings.





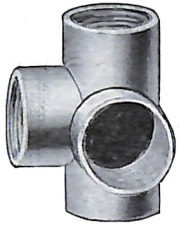




1	1¼	1½	1¾	2	2¼	2½	2¾	3	3½	4	4½	5	5½	6	
1⅝ 1¾	1⅞ 1⅞	2 1/16 2 3/16	2 3/16 2 5/16	2½ 2⅝	2⅞ 3	3⅛ 3¼	3⅜ 3½	3⅝ 3⅝	4 4⅛	4½ 4¾	5¼ 5¼	5¾ 5¾	6 6	6½ 6½	A
1 9/16	1 13/16	2¼	2⅜	2¾	3 1/16	3⅜	3 1/16	3 1/16	4 7/16	5	5⅝	6⅛	6⅝	7⅛	B
1⅝	2 1/32	2 5/16	2 7/16	2 13/16	3⅛	3 7/16	3¾	4	4½	5 1/16	5⅝	6⅛	6⅝	7⅛	
1⅛	1¼	1⅝	1¾	1⅞	2⅛	2¼	2⅜	2⅜	2½	2¾	2⅞	3	3⅛	3¼	C
2¼	2⅜	2½	2¾	2¾	3	3¼	3½	3½	3¾	4¼	4¼	4½	4½	5½	D
1⅞	2⅛	2⅜	2½	2⅝	2⅝	2⅞	2⅞	3¼	3¼	3½	3½	4	4	4½	E
4⅛	4⅞	5½	6¼	6½	7	7¾	8½	8¾	10 3/8	11½	...	...	...	...	F
4½	5	5½	5¾	6	6½	7	7¼	7½	8	9	9½	10	10½	11	G
1/4 11/64 9/32	1/4 9/32 5/16	9/32 5/16 11/32	9/32 5/16 11/32	5/16 11/32 3/8	5/16 11/32 3/8	11/32 3/8 13/32	11/32 3/8 13/32	3/8 13/32 7/16	13/32 7/16 15/32	7/16 15/32 1/2	7/16 33/64 17/32	7/16 1/2 9/16	7/16 17/32 5/8	7/16 9/16 11/16	H
3¼	3¾	4⅛	4½	4⅝	5⅛	5½	5¾	6	6½	7½	7⅞	8⅜	8⅞	9⅜	Drilling
4·½	4·½	4·½	4·½	4·⅝	4·⅝	4·⅝	4·⅝	4·⅝	4·⅝	4·⅝	8·⅝	8·⅝	8·⅝	8·⅝	
4·½	4·½	4·½	4·½	4·⅝	4·⅝	8·⅝	8·⅝	8·⅝	8·⅝	8·⅝	8·¾	8·¾	8·¾	8·¾	
4¾	6	6¾	7⅛	8	8⅞	9¾	10⅝	11½	13¼	15	16½	18	20	22	J
3½	4¼	5	5½	6¼	7	7¾	8½	9⅛	10⅝	12⅛	14	15	16½	18	K
1 1/32	1 1/8	1 3/32	2 5/32	2⅜	2⅝	3	3¼	3½	4	4½	5	5½	6	6½	L
7⅞	10⅛	11⅛	11¾	13	14½	15⅞	17¼	18½	22	24¾	28	30	33	36	Nos. 6,7,8,9
4¼	4½	5½	5¾	6	8½	9½	10	12	13	15	...	...	...	...	M
4¾	5⅛	6	6¼	7	8½	9	9½	11	11	12¼	...	...	...	...	N
5⅛	3¾	4⅛	4⅛	4⅛	4⅜	4⅜	5	5⅜	7	9½	...	...	...	...	O

WROUGHT IRON SPECIAL FITTINGS.

No. 35



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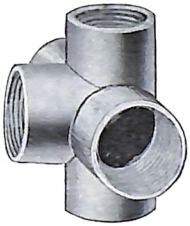


No. 37

No. 38

No. 38a

No. 38b

No.	DIAM. OF TUBE ins.	½	¾	1	1¼	1½	1¾	2	2¼	2½	3	3½	4
35	ANGLE ELBOWS each	7/.	9/6	12/.	14/6	17/.	23/.	27/.	34/3	41/.	69/.	87/6	106/6
36	ANGLE TEES ... ,,	8/.	11/.	14/.	16/.	19/.	26/6	31/.	39/3	46/3	75/.	95/6	114/.
37	FIVE-WAY PIECES ,,	9/.	12/.	15/.	18/.	21/6	29/.	33/6	44/6	53/.	87/.	110/.	132/.
38	Y PIECES ... ,,	6/.	6/3	7/6	10/.	12/.	15/6	16/.	24/.	32/.	45/6	68/3	84/.
38a	,, ... ,,	22/6	25/.	27/6	33/.	37/.	43/6	44/6	67/.	77/6	120/.	141/.	162/.
38b	,, ... ,,	26/9	30/.	33/6	38/.	42/.	49/.	50/.	72/.	82/.	120/.	141/.	162/.

MALLEABLE CAST IRON FITTINGS.

No. 250

No. 251

No. 252

No. 34

No. 35

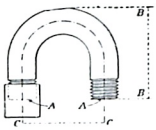
No.	INTERNAL DIAMETER OF TUBE ... ins.	¼	⅜	½	¾	1	1¼	1½	2	2¼	2½	3	4
250	TWO BOLT UNIONS ... ... each	...	1/4	1/6	1/7	2/2	2/7	2/11	3/2	...	...	...	...
251	THREE „ „ ... ... „	...	...	1/8	1/9	2/4	2/9	3/3	3/6	6/.	6/6	9/6	14/6
252	HEXAGON NIPPLES ... ... „	3d	3d	3d	3¾d	4½d	6d	9d	1/.	1/11	2/9	3/3	5/6
34	ROUND ELBOWS ... ... „	3½d	5d	6d	8d	1/.	1/6	2/.	3/.	...	4/8	9/3	17/6
35	HEXAGON BUSHINGS ... ... „	2d	2d	2d	2½d	3d	3½d	4½d	7d	...	10½d	1/3	2/1

Prices of Unions include Bolts, Nuts and Joint Washers.

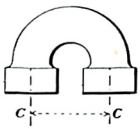
PLAIN HEXAGON SOCKETS.

SIZE ins.	⅛	¼	⅜	½	¾	1	1¼	1½	1¾	2
PRICE, ea.	11d	1/.	1/1	1/3	1/7	2/7	3/5	4/11	6/5	6/11
SIZE ins.	2¼	2½	2¾	3	3½	4	4½	5	5½	6
PRICE, ea.	8/.	9/10	12/.	14/2	20/9	25/7	35/3	43/2	52/.	60/9

DOUBLE BENDS.



No. 6a



No. 6b

SIZE	½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3	3½	4
6a. WROUGHT IRON price ea.	1/8	2/-	3/-	5/-	6/-	8/-	10/-	17/-	24/-	30/-	36/-	50/-	65/-
6b. MALLEABLE CAST ,,	3/9	4/8	6/-	8/8	10/8	12/-	13/3	18/8	22/4	28/-	32/-	44/-	60/-

HOOKS AND PIPE STRAPS

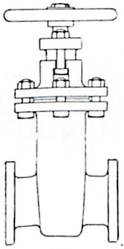
No. 33a

No. 33b

No. 282

No.	DIAM. OF TUBE ins.	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
33a	PIPE HOOKS, Black per gross	2/11	3/4	4/5	6/3	7/6	10/.	12/6	17/6	22/6	30/.	42/6
33b	WALL HOOKS, Black ,,	9/2	10/10	12/1	14/2	16/8	20/.	25/.	30/.	42/6	57/6	70/.
282	PIPE STRAPS, Black ,,	12/.	15/.	18/.	30/.	36/.	48/.	60/.	84/.	—	—	—

VALVES AND STRAINERS.



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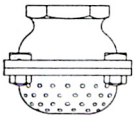

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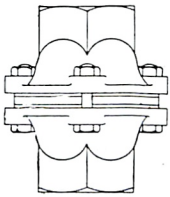


3

1 GATE OR SLUICE VALVES.

SIZE ... ... inches	2	2½	3	4	5	6
PRICE ... ... each	21/.	25/.	35/.	45/.	60/.	70/.

2 FOOT-VALVES AND STRAINERS.

SIZE ... inches	1	1¼	1½	2	2½	3	4
PRICE ... each	2/4	3/.	4/.	5/6	7/6	10/.	18/.

3 INTERMEDIATE CHECK VALVES.

SIZE ... inches	1	1¼	1½	2	2½	3	4
PRICE ... each	2/9	3/.	4/.	5/6	10/.	15/.	24/.

BRASSWARE.

HIGH-PRESSURE WATER FITTINGS STAMPED AND TESTED BY WATER BOARD.

		£	s	d	
Bibcocks	½"	1	12	0	doz.
"	⅝" × ¾" ...	1	13	6	"
"	¾"	2	10	0	"
"	1"	4	1	0	"
"	1¼"	0	14	0	each.
"	1½"		0	0	"
"	2"	1	10	0	"
Shower Cocks (R)	½"	1	11	0	doz.
" "	¾"	2	7	0	"
" "	1"	4	0	0	"
" "	1¼"	0	14	6	each.
" "	1½"	0	18	0	"
" "	2"	1	12	6	"
Shower Cocks (P)	½"	1	13	6	doz.
" "	¾"	2	10	0	"
" "	1"	4	4	0	"
" "	1¼"	0	15	0	each.
" "	1½"	0	19	0	"
" "	2"	1	13	6	"
Hose Cocks	½"	2	0	0	doz.
" "	⅝" × ¾" ...	2	7	0	"
" "	¾"	3	2	0	"
" "	1"	4	19	0	"
" "	1¼"	0	17	0	each.
" "	1½"	1	2	6	"
" "	2"	1	15	0	"

Allowance for Nut and Tail on Hose Cocks not required. ¾", 6/- doz.; 1", 9/- doz.

Bath Cocks	¾"	2	13	0	doz.
" "	1"	4	4	0	"
" "	1¼"	0	13	6	"
" "	1½"	0	18	0	"
" "	2"	1	9	0	"
" "	2½"	2	5	0	"
" "	3"	3	0	0	"

BRASSWARE—(continued.)

		£	s	d	
Ball Cocks	⅜″	1	13	0	doz.
" "	½″	1	13	6	"
" "	¾″	2	10	0	"
" "	1″	3	14	0	"
" "	1¼″	0	11	9	each.
" "	1½″	0	17	0	"
" "	2″	1	16	0	"
Combination Ball and Stop Cocks	½″	2	14	0	doz.
Unions, T. & S.	⅜″	0	18	0	"
" "	¾″	1	2	0	"
" "	1″	1	13	0	"
" "	1¼″	2	2	0	"
" "	1½″	3	3	0	"
" "	2″	4	16	0	"
" " Reducing	1″ × ¾″	1	10	0	"
" " "	1¼″ × ¾″	1	13	0	"
" " "	1¼″ × 1″	1	16	0	"
Connections, Lead	¾″ × 9″	0	9	6	each.
" "	¾″ × 12″	0	11	3	"
" "	1″ × 12″	0	15	0	"
" "	1″ × 1¼″ × 12″	0	16	6	"
" "	¾″ × 1″ × 9″	0	11	6	"
" "	¾″ × 1¼″ × 9″	0	12	6	"
" "	¾″ × 1¼″ × 12″	0	13	6	"
Ferrule Cocks	¾″	2	16	0	doz.
" "	1″	4	7	0	"
Ferrule Cocks with Elbow Unions	¾″	0	6	8	each.
" " " " "	¾″ × 1″	0	7	9	"
" " " " "	1″	0	11	6	"
" " " " "	¾″ × 1¼″	0	8	9	"
" " " " "	1″ × 1¼″	0	12	6	"
Elbows, with nuts and tails	⅜″	0	3	0	"
" " "	¾″ × 1″	0	3	6	"
" " "	1″	0	5	0	"
" " "	¾″ × 1¼″	0	4	3	"
" " "	1″ × 1¼″	0	5	6	"

Unstamped Fittings can also be supplied.

TABLES

HEAD OF WATER IN FEET, & APPROXIMATE

FOR LINES OF PIPING

ALLOWING FOR AN AVERAGE

TABLE I.—This gives approximate Discharge, under a Head of

NOTE.—For other lengths, factor

Head (or Fall) in Feet	DISCHARGE IN					
	½″	¾″	1″	1¼″	1½″	2″
1	·16	·45	·93	1·63	2·57	5·28
2	·23	·64	1·32	2·30	3·63	7·46
4	·33	·91	1·87	3·26	5·14	10·6
6	·40	1·11	2·29	3·98	6·29	12·9
9	·49	1·36	2·80	4·88	7·71	15·9
12	·57	1·57	3·25	5·64	8·90	18·3
16	·66	1·81	3·73	6·51	10·3	21·1
20	·74	2·03	4·18	7·28	11·5	23·6
25	·82	2·27	4·67	8·14	12·9	26·4
30	·90	2·48	5·11	8·92	14·1	28·8
40	1·04	2·88	5·91	10·3	16·3	33·5
50	1·16	3·21	6·61	11·5	18·2	37·4
75	1·42	3·93	8·10	14·1	22·3	45·7
100	1·65	4·55	9·35	16·3	25·7	52·8
150	2·03	5·59	11·5	19·9	31·5	64·9
200	2·33	6·42	13·2	23·0	36·3	74·6
250	2·61	7·20	14·8	25·7	40·7	83·7
500	3·69	10·20	20·9	36·4	57·5	118·0

TABLE II.—When the pipe line is more than, or less than, 1,000 feet factor chosen from

LENGTH IN FEET	50	100	150	200	300
Factor	4·47	3·16	2·58	2·237	1·827
LENGTH IN FEET	1,750	2,000	2,500	3,000	4,000
Factor	·756	·707	·633	·577	·500

EXAMPLE:—Required—approximate Discharge of a line of piping
Approximate Discharge for the 1,000 feet line from Table I.
∴ Approximate Discharge = 163 × ·447

SHEWING

DISCHARGE IN GALLONS PER MINUTE

½" BORE TO 6" BORE,

NUMBER OF BENDS & FITTINGS.

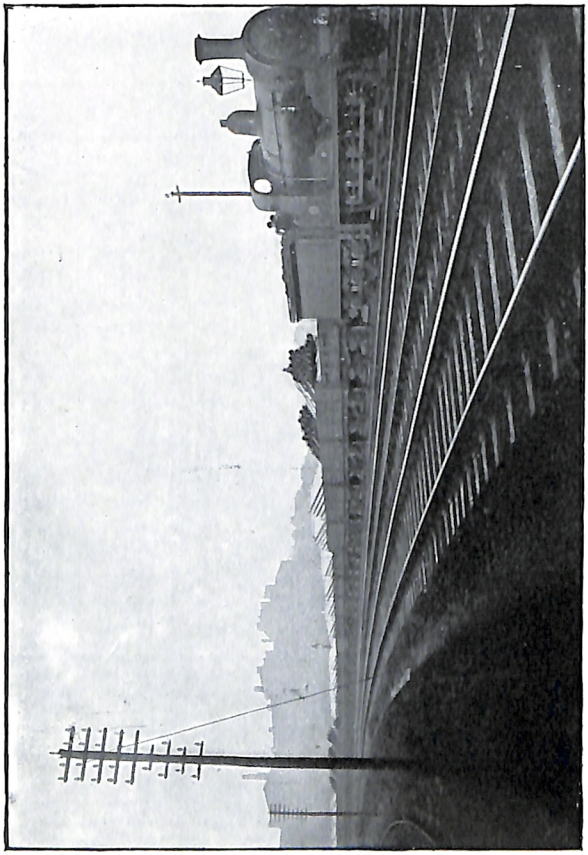
from 1 foot to 500 feet, for a Pipe Line 1,000 feet in Length. from Table II. below, should be used.

Gallons per Minute						Head (or Fall) in Feet
2½"	3"	3½"	4"	5"	6" Bore	
9·22	14·5	21·3	29·8	52·1	82·2	1
13·0	20·5	30·1	42·1	73·6	116·0	2
18·4	29·1	42·7	59·6	104·0	164·0	4
22·5	35·5	52·2	73·0	127·0	201·0	6
27·7	43·6	64·1	89·5	156·0	246·0	9
32·0	50·4	74·0	103·0	180·0	285·0	12
36·9	58·1	85·4	119·0	208·0	329·0	16
41·2	64·9	95·4	133·0	233·0	367·0	20
46·1	72·6	106·0	149·0	260·0	411·0	25
50·5	79·5	116·0	163·0	285·0	450·0	30
58·3	92·0	135·0	188·0	329·0	520·0	40
65·2	102·0	150·0	210·0	368·0	581·0	50
79·9	125·0	184·0	258·0	451·0	712·0	75
92·2	145·0	213·0	298·0	521·0	822·0	100
113·0	178·0	262·0	366·0	637·0	1011·0	150
130·0	205·0	301·0	421·0	736·0	1161·0	200
146·0	230·0	337·0	471·0	824·0	1303·0	250
206·0	325·0	476·0	667·0	1164·0	1840·0	500

in Length, the figure taken from Table I. must be multiplied by a suitable the following Table:—

400	500	750	1,000	1,250	1,500
1·580	1·414	1·154	1·0	·895	·817
5,000	7,500	10,000	5 miles	10 miles	50 miles
·447	·365	·316	·195	·138	·0616

4" bore, 5,000 feet long, under 30 feet head.
= 163 gallons per minute. Factor from Table II. = ·447.
= 72·9 gallons per minute



TRAIN LOAD OF SCREWED TUBES

Boiler Tubes.

LAPWELDED
WROUGHT IRON AND STEEL TUBES

FOR

LOCOMOTIVE, MARINE, and STATIONARY BOILERS.

Tested to 1000 lbs. per square inch (68 Atmospheres.)

BOILER TUBE SWELLED ONE END

BOILER TUBE SWELLED AND REDUCED

STAY TUBE WITH STAVED ENDS FOR MARINE BOILERS

STAY TUBE SHOWING THICKENED AND SCREWED ENDS

STAY TUBE, SCREWED ORDINARY

BACKNUT

FERRULE

BOILER TUBES are stocked in lengths of 10, 12, 14, 16 and 18 feet.

STAY TUBES are stocked in lengths of 10′ 3″, 12′ 3″, 14′ 3″, 16′ 3″ and 18′ 3″ but any other lengths may be arranged for, or stock lengths cut, swelled and annealed to special requirements on our premises.

Other descriptions of Boiler Tubes, such as:—

COLD DRAWN WELDLESS STEEL TUBES,
HOT ROLLED WELDLESS STEEL TUBES,
"COPPER COATED" & "NON-CORROSIVE"
SEAMLESS STEEL TUBES,

can also be supplied at prices which will be quoted on application.

IRON AND STEEL BOILER TUBES.

PRICE LIST.

EXTERNAL DIAMETER in ins....	1¼	1⅜	1½	1⅝	1¾	1⅞	2	2⅛	2¼	2⅜	2½	2⅝	2¾	2⅞	3
IMPERIAL WIRE GAUGE ...	13	13	13	13	13	13	12	12	12	11	11	11	11	11	11
Equivalents in inches	·092	·092	·092	·092	·092	·092	·104	·104	·104	·116	·116	·116	·116	·116	·116
Price per ft. of above W.G. ...	9½d	9½d	9½d	9¾d	10d	10¼d	11¾d	1/0¼	1/0½	1/2	1/2½	1/3¼	1/3¾	1/4½	1/5
,, ,, 1 extra Gauge ...	10½d	10½d	10½d	10¾d	11d	11½d	1/1	1/1½	1/1¾	1/3½	1/4	1/4¾	1/5¼	1/6	1/7
,, ,, 2 ,, Gauges ...	11¾d	11¾d	11¾d	1/.	1/0¼	1/0¾	1/2¼	1/3	1/3¼	1/5¼	1/5¾	1/6½	1/7½	1/8½	1/9
,, ,, 3 ,, ,, ...	1/0¾	1/0¾	1/0¾	1/1¼	1/1½	1/2	1/4	1/4½	1/5	1/7	1/7½	1/8½	1/9½	1/10½	1/11
,, ,, 4 ,, ,, ...	1/2¼	1/2¼	1/2¼	1/2¾	1/3	1/3½	1/5½	1/6½	1/7	1/9	1/9½	1/10½	1/11½	2/0½	2/1½
Price per ft. of 3/16 in. thick ...	1/6	1/6	1/6	1/6½	1/7	1/7½	1/8	1/9	1/9½	1/10	1/10½	2/.	2/1	2/2	2/3
,, ,, ¼ ,, ...	1/11	1/11	1/11	2/	2/1	2/2	2/3	2/4	2/4½	2/5	2/6	2/8	2/9	2/11	3/.
,, ,, 5/16 ,, ...	...	...	...	...	...	...	2/10	2/11½	3/1	3/2	3/3	3/5	3/7	3/9	3/11
,, ,, ⅜ ,, ...	...	...	...	...	...	...	3/7	3/10	4/.	4/1	4/3	4/6	4/8	5/.	5/2
,, ,, 7/16 ,, ...	...	...	...	...	...	...	4/5	4/8	4/11	5/1	5/4	5/8	5/11	6/3	6/6
,, ,, ½ ,, ...	...	...	...	...	...	...	5/3	5/8	6/.	6/2	6/6	6/10	7/2	7/6	8/.
,, ,, 9/16 ,, ...	...	...	...	...	...	...	...	...	...	...	9/2	9/9	10/4	11/.	11/6

IRON AND STEEL BOILER TUBES.

PRICE LIST—continued.

EXTERNAL DIA. in ins.	3¼	3½	3¾	4	4¼	4½	4¾	5	5¼	5½	5¾	6	6¼	6½	6¾	7
IMPERIAL WIRE GAUGE	10	10	10	9	9	9	8	8	8	7	7	7	7	7	7	7
EQUIVALENTS in inches	·128	·128	·128	·144	·144	·144	·160	·160	·160	·176	·176	·176	·176	·176	·176	·176
Price per ft. of above W.G.	1/8	1/10	1/11½	2/4½	2/7½	2/9½	3/4	3/7	3/11	4/6	4/11	5/2	5/10	6/1	6/7	6/10
„ „ 1 extra Gauge	1/10½	2/0½	2/2	2/7½	2/10½	3/1	3/8	3/11	4/3	4/11	5/4	5/7	6/4	6/7	7/2	7/5
„ „ 2 „ Gauges	2/1	2/3	2/5	2/10½	3/2	3/4	4/.	4/3	4/8	5/5	5/11	6/2	7/.	7/3	7/10	8/2
„ „ 3 „ „	2/3½	2/5½	2/7½	3/1	3/5	3/8	4/5	4/8	5/2	5/10	6/5	6/9	7/7	7/11	8/7	8/11
„ „ 4 „ „	2/5½	2/8	2/10½	3/5	3/9	4/.	4/10	5/1	5/7	6/7	7/1	7/5	8/4	8/8	9/4	9/8
Price per ft. of 3/16 in. thick	2/5	2/7½	2/9½	3/.	3/4	3/7	3/11	4/2	4/7	4/10	5/3	5/6	6/2	6/6	7/.	7/3
„ „ ¼ „	3/3	3/6	3/9	4/1	4/6	4/10	5/6	5/9	6/3	6/7	7/1	7/5	8/4	8/8	9/4	9/8
„ „ 5/16 „	4/2	4/7	4/11	5/4	5/11	6/3	7/1	7/6	8/1	8/6	9/1	9/6	10/6	11/.	11/8	12/1
„ „ 3/8 „	5/7	6/1	6/7	7/1	7/10	8/4	9/6	10/.	10/6	11/.	11/8	12/3	13/3	13/9	14/4	15/.
„ „ 7/16 „	7/1	7/8	8/4	9/.	10/.	10/6	11/10	12/6	13/3	14/.	14/9	15/6	16/9	17/4	18/.	18/9
„ „ ½ „	8/9	9/6	10/3	11/2	12/2	13/.	14/6	15/6	16/6	17/3	18/.	19/.	20/6	21/3	22/3	23/.
„ „ 9/16 „	12/.	13/2	14/3	15/6	16/.	16/6	17/6	18/9	...	...	...	...	...	...	...	...

IRON AND STEEL BOILER TUBES.

PRICE LIST—continued.

EXTERNAL DIA. in ins.	7¼	7½	7¾	8	8¼	8½	8¾	9	9¼	9½	9¾	10	10¼	10½	10¾	11	11½	12
IMPERIAL WIRE GAUGE	5	5	5	5	3	3	3	3	3	3	3	3	2	2	1	1	1	1
EQUIVALENTS in inches	·212	·212	·212	·212	·252	·252	·252	·252	·252	·252	·252	·252	·276	·276	·300	·300	·300	·300
Price per ft. of above W.G.	8/9	9/1	9/5	9/9	12/3	12/7	13/.	13/4	14/9	15/2	15/6	16/.	18/.	18/6	20/6	21/.	22/.	23/.
,, ,, ,, 1 extra Gauge	9/7	9/11	10/3	10/7	13/5	13/10	14/4	14/9	16/3	16/8	17/1	17/6	19/6	20/.	...	...	...	...
,, ,, ,, 2 ,, Gauges	10/4	10/8	11/.	11/5	14/6	15/.	15/6	16/.	17/6	18/.	18/6	19/.	...	...	...	...	...	...
,, ,, ,, 3 ,, ,,	11/4	11/9	12/2	12/7	...	...	...	...	...	...	...	...	...	...	...	...	...	...
,, ,, ,, 4 ,, ,,	12/3	12/9	13/2	13/7	...	...	...	...	...	...	...	...	...		...	...	...	...
Price per ft. of 3/16 in. thick																		
,, ,, ¼ ,,	10/4	10/8	11/.	11/5	12/3	12/7	13/.	13/4	14/9	15/2	15/6	16/.	...	...	...	...	...	...
,, ,, 5/16 ,,	12/9	13/3	13/8	14/2	15/2	15/8	16/1	16/7	18/3	18/9	19/4	19/10	20/6	21/.	21/6	22/.	23/.	24/.
,, ,, ⅜ ,,	15/6	16/.	16/6	17/3	18/.	18/6	19/3	19/9	21/9	22/6	23/.	23/6	24/6	25/.	25/6	26/.	27/3	28/6
,, ,, 7/16 ,,	19/6	20/3	21/.	21/9	22/3	23/.	23/9	24/6	26/.	26/9	27/6	28/3	29/.	29/9	30/6	31/3	32/9	34/.
,, ,, ½ ,,	24/.	24/9	25/9	26/6	27/6	28/3	29/3	30/3	31/.	32/.	32/10	33/9	34/6	35/6	36/6	37/6	39/.	40/6

IRON AND STEEL STAY TUBES.

SCREWED TUBULAR STAYS, INCLUSIVE OF 11 INCHES OF SCREWING.—Price per foot.

EXTERNAL DIAM. in ins.	1½	1⅝	1¾	1⅞	2	2⅛	2¼	2⅜	2½	2⅝	2¾	2⅞	3	3¼	3½	3¾	4	4¼	4½	4¾	5
3/16 in. thick	1/8	1/8½	1/9	1/9½	1/10	1/11	1/11½	2/.	2/0½	2/2	2/3	2/5	2/6	2/8	2/10½	3/0½	3/4	3/8	3/11	4/3	4/6
1/4 ,, ...	2/1	2/2	2/3	2/4	2/5	2/6	2/6½	2/7	2/8	2/10	2/11	3/2	3/3	3/6	3/9	4/.	4/5	4/10	5/2	5/10	6/1
5/16 ,, ...	...	...	...	...	3/.	3/1½	3/3	3/4	3/5	3/7	3/9	4/.	4/2	4/5	4/10	5/2	5/8	6/3	6/7	7/5	7/10
3/8 ,, ...	...	...	...	...	3/9	4/.	4/2	4/3	4/5	4/8	4/10	5/3	5/5	5/10	6/4	6/10	7/5	8/2	8/8	9/10	10/4
7/16 ,, ...	...	...	...	...	4/7	4/10	5/1	5/3	5/6	5/10	6/1	6/6	6/9	7/4	7/11	8/7	9/4	10/4	10/10	12/2	12/10
1/2 ,, ...	...	...	...	...	5/5	5/10	6/2	6/4	6/8	7/.	7/4	7/9	8/3	9/.	9/9	10/6	11/6	12/6	13/4	14/10	15/10
9/16 ,, ...	...	...	...	...	...	...	...	...	9/4	9/11	10/6	11/3	11/9	12/3	13/3	14/6	15/10	16/4	16/10	17/10	19/1

SCREWED NUTS, SWELLING STAYS, AND SCREWING STAYS BEYOND 11 INCHES.

EXT. DIAM. OF STAYS in ins.	1½	1⅝	1¾	1⅞	2	2⅛	2¼	2⅜	2½	2⅝	2¾	2⅞	3	3¼	3½	3¾	4	4¼	4½	4¾	5
SCREWED NUTS ... ... each	8d	9d	10d	11d	1/.	1/1	1/2	1/3	1/5	1/6	1/7	1/9	1/10	2/3	2/8	3/.	3/5	3/9	4/2	4/8	5/3
SWELLING STAYS, ¼ in. per End	6d	6d	7d	7d	8d	8d	10d	10d	10d	10d	10d	1/.	1/.	1/.	1/2	1/2	1/4	1/4	1/6	1/8	1/10	2/.
SCREWING STAYS, per Lineal in. ...	1d	1d	1¼d	1¼d	1½d	1½d	2d	2d	2½d	2½d	2½d	3d	3d	3d	3½d	3½d	4d	4d	5d	5d	5d

IRON AND STEEL STAY TUBES—continued.

PRICE LIST.

THICKENING UP ENDS OF TUBES TO 3/8 INCH FOR 2 1/2 INCHES UP—Price per end.

EXT. DIAM. OF TUBE ... ins.	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2	2 5/8	2 3/4	2 7/8	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5
TUBES 3/16 in. thick	4/.	4/4	4/8	5/.	5/4	5/8	6/.	6/4	6/8	7/.	7/3	7/8	8/4	...	...	...	...	...	...	...	...
TUBES 1/4 „	3/.	3/2	3/4	3/6	3/8	3/10	4/.	4/3	4/6	4/9	5/.	5/3	5/6	6/2	6/9	7/4	7/10	8/6	9/6	10/6	11/6
TUBES 5/16 „	2/9	2/11	3/1	3/3	3/5	3/7	3/9	4/.	4/3	4/6	4/9	5/.	5/3	5/8	6/3	6/8	7/.	7/6	8/6	9/6	10/6

IRON COLLARS WELDED ON TUBES, TURNING AND FACING COLLARS, AND WELDING IN ENDS OF TUBES.

DIAMETER OF TUBE ... ... in ins.	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5
LENGTH OF COLLAR ... ... in ins.	2	2	2	2	2 1/4	2 1/4	2 1/2	2 1/2	2 1/2	2 1/2	2 3/4	2 3/4	2 3/4
COLLAR 3/16 in. thick ... ... each	1/4	1/6	1/8	1/10	2/1	2/4	2/7	2/10	3/1	3/4	3/8	4/.	4/4
„ 1/4 „ ... ... „	1/7	1/9	1/11	2/1	2/4	2/7	2/10	3/1	3/4	3/7	4/.	4/4	4/8
TURNING AND FACING COLLARS ... „	1/2	1/4	1/6	1/8	1/11	2/2	2/5	2/8	2/11	3/2	3/6	3/10	4/2
WELDING IN ENDS ... ... „	1/4	1/6	1/8	1/10	2/1	2/4	2/7	2/10	3/1	3/4	3/8	4/.	4/4

Note.—Every 1/2 in. increased length of Collar up to 3 in. diam. will be charged 7d. per 1/2 in. extra; and larger diams. 10d. per 1/2 in. extra.

BOILER TUBE FERRULES.

OUTSIDE DIAMETER OF BOILER TUBE ... ins.	1¼	1⅜	1½	1⅝	1¾	1⅞	2	2⅛	2¼	2⅜
Length of Ferrules B1 & B2 ... ... "	1	1	1	1⅛	1 3/16	1 3/16	1 3/16	1 3/16	1 3/16	1 3/16
Thickness of Ferrules—B.W.G.	12	12	12	12	12	12	11	11	11	10
PRICE OF 100 FERRULES, B1	47/3	47/3	47/3	47/9	48/3	50/.	52/6	54/3	60/6	63/.
" 100 " B2	70/.	70/.	70/.	70/6	71/.	72/.	75/.	80/.	86/3	90/.

OUTSIDE DIAMETER OF BOILER TUBE ... ins.	2½	2⅝	2¾	2⅞	3	3¼	3½	3¾	4	...
Length of Ferrules B1 & B2 ... ... "	1¼	1¼	1¼	1¼	1¼	1 5/16	1 5/16	1⅜	1⅜	...
Thickness of Ferrules—B.W.G.	10	10	10	10	10	9	9	9	8	...
PRICE OF 100 FERRULES, B1	65/.	69/9	74/.	75/6	81/6	90/6	95/9	104/6	115/6	...
" 100 " B2	92/6	96/.	100/.	104/.	111/.	122/.	130/.	142/.	160/.	...

These Ferrules are made from Lapwelded Wrought Iron and Steel Tube, and have a taper of 1/16" in diameter in 1" of length.

The outside diameter of ferrule at centre is the same as bore of tube into which it is intended to be driven.

B1. Are tapered under hammer, and have corners buffed.

B2. Are tapered in lathe by turning on outside.

Notes on Iron and Steel Boiler and Stay Tubes.

BOILER TUBES.

Tubes of intermediate diameters will be charged at the same price as the next larger size.

Tubes of an intermediate thickness will be charged at the price of the next greater thickness.

Tubes thinner than the List gauge will be charged at the price for the usual List gauge.

Tubes up to 18 feet 6 inches long are supplied without extra charge.

Tubes longer than 18 feet 6 inches will be charged at 2½ per cent. less gross discount for every foot or part of a foot.

Tubes up to and including 5 inches external diameter, and not thicker than No. 7 I.W.G., are swelled or reduced 1/16 inch at one end for 4 inches up without extra charge. Swelling or reducing more than 1/16 inch at one end will be charged at a gross price of 12/ per 100 ends per 1/16 inch.

The swelling of Tubes up to and including 5 inches external diameter, and thicker than No. 7 I.W.G., will be charged at the gross prices for swelling Stay Tubes.

When no thickness of Tube is specified, orders will be executed at the wire gauge named on the first line.

STAY TUBES.

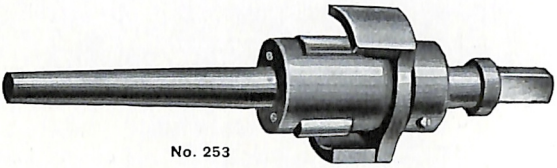
Unless otherwise ordered, Screwed Stays are sent screwed 6″ up at one end and 5″ up at the other end.

THICKENING.—Any Tubes over 5/16 in. thick are charged at same prices as those for 5/16 in. thick.

When the length of the thickened end exceeds 2½ ins., 1s 8d is added to list prices for every ½ inch of the extra length.

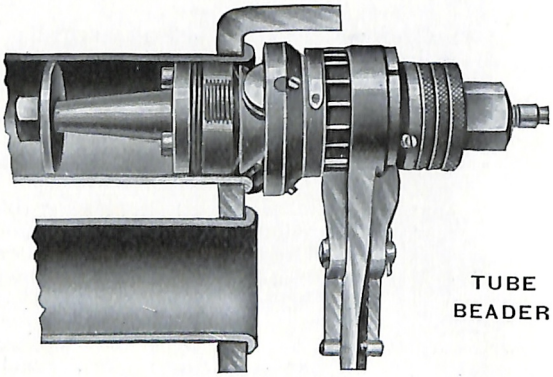
If no thickness is specified, Stay Tubes are sent ¼ inch thick.

BOILER TUBE TOOLS.



No. 253

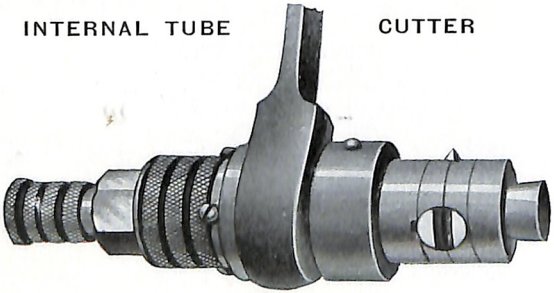
TUBE EXPANDER



TUBE BEADER

No.254

INTERNAL TUBE CUTTER



No. 255

PRICES ON APPLICATION.

Ammonia and Hydraulic Tubes. Coils.

AMMONIA AND HYDRAULIC TUBES.

Special Ammonia Tubes for coil making supplied in random lengths, and unscrewed, unless otherwise arranged.

BUTTWELDED

NOMINAL SIZE Inches	THICKNESS	PRICE per foot
½	9 W.G.	4¼d
¾	8 W.G.	5¼d
1	7 W.G.	7½d
1¼	6 W.G.	9¾d
1½	5 W.G.	1/0¾

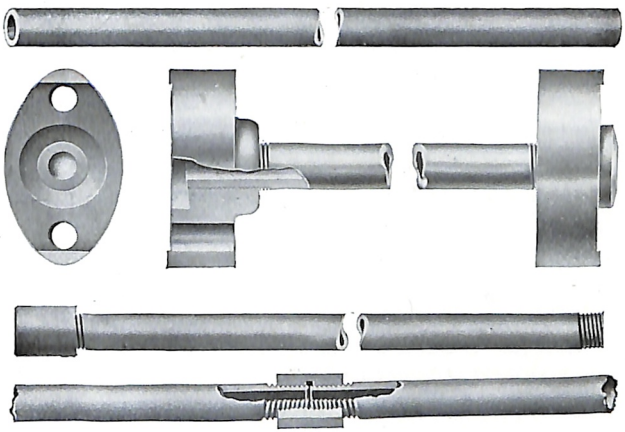
LAPWELDED

NOMINAL SIZE Inches	THICKNESS	PRICE per foot
1	8 W.G.	9¼d
1	7 W.G.	9½d
1¼	7 W.G.	10¾d
1¼	6 W.G.	11d
1½	6 W.G.	1/-
1½	5 W.G.	1/1
2	5 W.G.	1/2¼
2½	⅜"	5/2
3	⅜"	6/1
3½	⅜"	7/1
4	⅜"	8/4
5	½"	18/-
6	½"	22/3

The sizes given are the screwing sizes.

LARGE STOCKS CARRIED.

HYDRAULIC TUBES.



HYDRAULIC TUBES, Heavy, Screwed, and fitted with strong Hexagon Sockets, tested to 3000 lbs. per square inch.

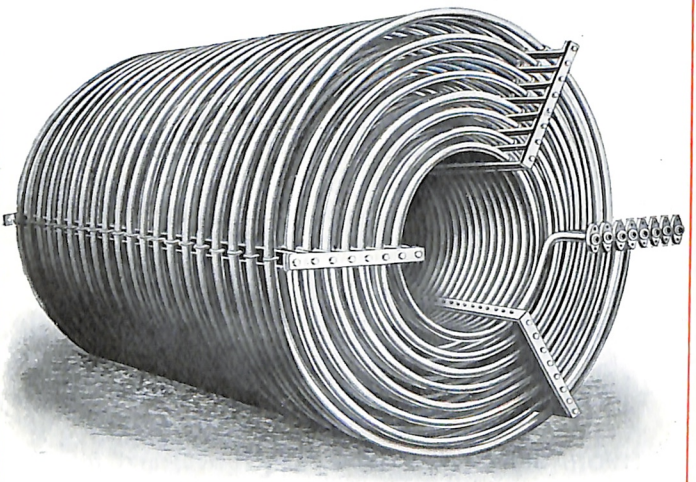
Nom. Bore.	Per foot.
½″	8½d.
¾″	10½d.
1″	1/5½
1¼″	1/9
1½″	2/1
2″	2/10½

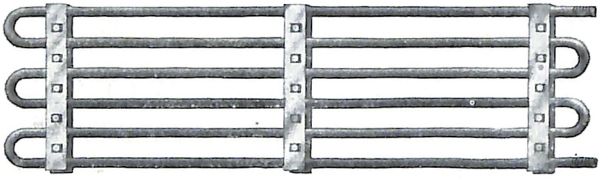
Large Stocks Carried.

Tubes can also be supplied with heavy round Sockets or with Flanges.

COILS FOR ICE-MAKING MACHINERY

AND ALL PURPOSES.





All kinds and descriptions made to order.

Price will be quoted on receipt of sketch or wire model of what is required.

Diameter of Tube and dimensions of Coil to be stated.

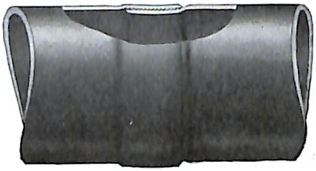
Boring Tubes.

STEWARTS' "RUSSIAN" BRAND.

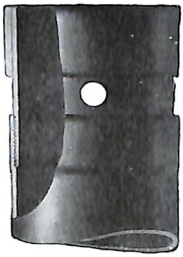
CASING TUBES,

For ARTESIAN, and also for shallow bores, supplied in Wrot. Iron or Steel, or to Government Specifications as required.

No. 1. SWELLED AND CRESSED SCREWED JOINT



JOINT.



CAP.

SHOE

These Tubes can also be supplied swelled, **not** cressed, as per illustration below.

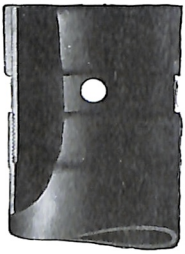
STEWARTS' "RUSSIAN" BRAND.

SWELLED AND CRESSED JOINT CASING TUBES.

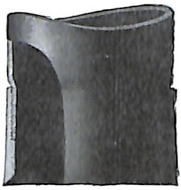
EXTERNAL DIAMETER	THICKNESS	PRICE per foot
3″	10 W.G.	1/8
	8 W.G.	1/10
	3/16″	2/.
4″	9 W.G.	2/5
	3/16″	2/11
	7/32″	3/3
5″	3/16″	3/5
	7/32″	3/11
	1/4″	4/5
6″	3/16″	4/2
	7/32″	4/8
	1/4″	5/3
6 3/8″	1/4″	5/10
7″	7 W.G.	5/.
	1/4″	6/2
	9/32″	6/9
8″	6 W.G.	6/.
	1/4″	7/.
	9/32″	7/8
	5/16″	8/6
10″	1/4″	9/6
	9/32″	10/.
	5/16″	10/9
	11/32″	11/6
Also stocked in Galvanized at the following prices:		
3″	10 W.G.	2/.
	8 W.G.	2/4
4″	9 W.G.	2/10
	3/16″	3/7
5″	3/16″	4/2
6″	3/16″	5/2

LARGE STOCKS CARRIED

BORING TUBE FITTINGS.

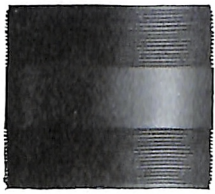


CAP



SHOE

FLANGE



NIPPLE

BORING TUBE FITTINGS.

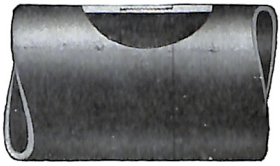
		4″	5″	6″	8″	10″
SHOES	each	30/.	30/.	35/.	60/.	100/.
SWIVELS	"	22/6	25/.	30/.	40/.	50/.
FLANGES	"	11/6	12/6	15/.	25/.	40/.
NIPPLES	"	9/.	10/.	12/6	20/.	30/.

Other Fittings and Tools quoted for on application.

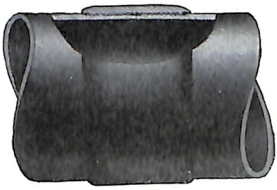
STEWARTS'
"RUSSIAN" BRAND BORING TUBE

May also be had with any of the following types of Joints at prices which will be quoted on application.

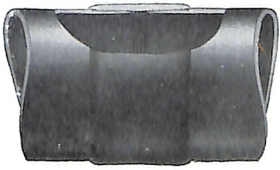
No. 2. SCREWED FLUSH JOINT (Butt and Butt.)



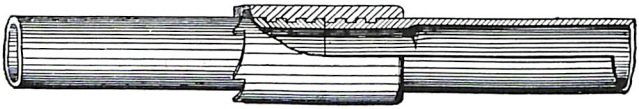
No. 3. SCREWED and SOCKETED DRIVE PIPE.



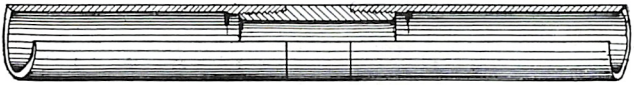
No. 4. SCREWED and SOCKETED CASING TUBE.



BORING RODS.



No.



No. 2

No. 3

The above illustrations shew the three forms of Boring Rods most generally used.

No. 1 is of mild steel throughout, the tubes being thickened internally at ends and screwed square thread. The socket is sawn out at one end as shewn, thus forming a simple toothed or rotary shoe.

Where it is important that outside of tube should be flush throughout, tubing can be supplied with union joints, as illustrated in Nos. 2 and 3.

Boring Rods are generally supplied with the unions screwed with V threads, but they are also supplied with square threads, as shewn in No. 3.

The tube ends for this joint also could be thickened if required.

When ordering, please state sizes, thicknesses, and lengths required.

Prices and fuller particulars may be had on application.

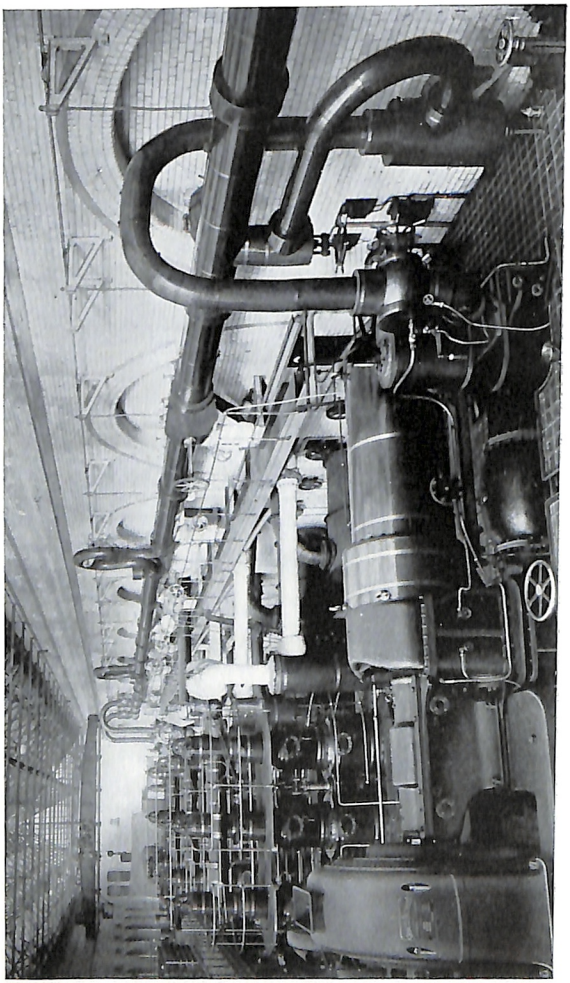
ROCK DRILL COLUMNS

4″ Ext. Diam. × ¼″ thick and 4½″ Ext. Diam. × ⅜″ thick

ALWAYS IN STOCK

STEAM INSTALLATIONS.

MAIN STEAM PIPE INSTALLATION.



STEEL PIPES FOR HIGH PRESSURE STEAM INSTALLATIONS.

It is now 30 years since steel pipes were first used for high pressure steam mains in place of cast iron and copper pipes, and since then their use has steadily increased until now steel is recognised the world over as the standard for such work.

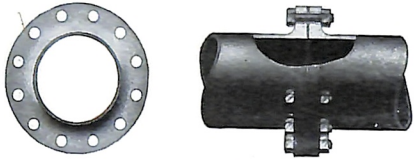
We supply pipes made by all the accepted processes, viz.: Buttweld, Lapweld, and Weldless. Our Lapwelded pipes have a strength of at least ninety per cent. of the steel from which they are made (25 to 29 tons tensile.)

For working pressures over 100 lbs. per square inch, we usually supply feed and steam pipes with flanges welded on, while for pressures under 100 lbs. we recommend flanges of cast or wrought steel or iron, screwed on.

For exhaust pipes, we supply similar pipes of lighter section, and for sizes over 8″, riveted pipes are sometimes more economical, and are quite reliable if carefully made; but for exhaust pipes direct to condensers (i.e., under a vacuum), we recommend steel pipes with screwed flanges, in order to avoid possible leakage, which is difficult to detect under a vacuum. We also supply all manner of special fittings for steam pipes, such as Water Separators, Steam Traps, Expansion Joints and Bends, and specially Welded Fittings of all kinds.

STEEL PIPES with WELDED FLANGES

FOR WORKING PRESSURES UP TO 225 lbs. PER SQUARE INCH.



WELDED-ON FLANGE JOINT.

Pipes with flanges welded on, as shown, are the regular standard for Steam and Feed Mains for pressures exceeding 100 lbs. This Joint has the advantage of preserving the full strength of the pipes, which is impracticable with any screwed or riveted joint. The Pipes and Flanges are of wrot. iron or mild open hearth steel welded together by special machinery, and proportioned so as to leave as large a radius as possible between bolt head and pipe. Flanges are British Standard Table No. 3.

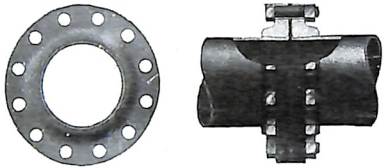
Prices for B.S. Table No. 2 will be quoted on application.

NOM. BORE OF PIPE in ins.	2	3	4	5	6	8	10	12	14	16	18	20
Thickness of Pipe	5 W.G.	4 W.G.	¼″	¼″	¼″	¼″	5/16″	5/16″	5/16″	⅜″	⅜″	⅜″
Price per foot of Pipe	2/3	3/9	5/3	6/6	7/9	10/2	15/9	19/7	23/3	31/7	35/6	39/4
Diameter of Flanges in ins.	6	7¼	8½	10	11	13¾	16	18	20¾	22¾	25¼	27¾
Diameter of Bolt Circle " "	4½	5¾	7	8¼	9¼	11½	14	16	18½	20½	23	25¼
Number and Size of Bolts ...	4-5/8″	8-5/8″	8-5/8″	8-¾″	8-¾″	12-¾″	12-⅞″	16-⅞″	16-1″	16-1″	20-1″	20-1⅛″
Price per pair of Flanges ...	46/.	68/.	80/.	92/.	119/.	142/.	174/.	211/.	270/.	316/.	370/.	427/.
Price of Bend (flanged)	66/.	101/.	128/.	164/.	232/.	332/.	466/.	641/.	883/.	1246/.	1584/.	—
Price of Wrot. Steel Tee (flanged)	117/.	185/.	225/.	272/.	355/.	456/.	566/.	730/.	970/.	1186/.	1423/.	1661/.
Price of Branch (flanged) ...	62/.	125/.	150/.	176/.	220/.	284/.	364/.	522/.	640/.	771/.	912/.	1070/.

For intermediate and larger sizes, see Section "S" of large Catalogue.

STEEL PIPES with SCREWED FLANGES

FOR WORKING PRESSURES UP TO 225 lbs. PER SQUARE INCH.



SCREWED-ON FLANGE JOINT.

Pipes with flanges screwed on, as shown, are sometimes substituted for the standard welded flanged pipes as shown on previous page. With flanges of cast steel they are rather cheaper, and, while we recommend welded joints for high pressures, flanges of wrought or cast steel, correctly screwed on pipes of the minimum thicknesses listed below, are quite reliable. The flanges and pipes are screwed to a corresponding taper, the flanges being bell-mouthed on face, into which the pipes are riveted after screwing home.

Unless otherwise ordered, the flanges for these joints are supplied of Cast Steel screwed and riveted up, and machined plain on face for corrugated metallic joint rings, and drilled for bolts.

Flanges are British Standard Table No. 2 Diameters and Drillings.

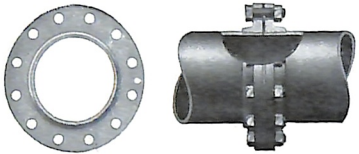
NOM. BORE OF PIPE in ins.	2	3	4	5	6	8	10	12	14	16	18	20
Thickness of Pipe	5 W.G.	4 W.G.	1/4"	1/4"	1/4"	1/4"	5/16"	5/16"	5/16"	3/8"	3/8"	3/8"
Price per foot of Pipe	2/3	3/9	5/3	6/6	7/9	10/2	15/9	19/7	23/3	31/7	35/6	39/4
Diameter of Flanges in ins.	6 1/2	8	9	11	12	14 1/2	17	19 1/4	21 3/4	24	26 1/2	29
Diameter of Bolt Circle " "	5	6 1/2	7 1/2	9 1/4	10 1/4	12 3/4	15	17 1/4	19 1/2	21 3/4	24	26 1/2
Number and Size of Bolts ...	4-5/8"	8-5/8"	8-5/8"	8-3/4"	12-3/4"	12-3/4"	12-7/8"	16-7/8"	16-1"	20-1"	20-1 1/8"	24-1 1/8"
Price per pair of Flanges ...	23/.	36/.	47/.	90/.	101/.	133/.	176/.	226/.	280/.	349/.	423/.	521/.
Price of Bend (flanged)	36/.	58/.	84/.	148/.	190/.	299/.	460/.	644/.	882/.	1258/.	1616/.	—
Price of Cast Steel Tee ...	61/.	90/.	122/.	189/.	236/.	344/.	473/.	667/.	843/.	1055/.	1308/.	1650/.
Price of Wrot. Steel Tee (flanged)	74/.	124/.	164/.	256/	300/.	414/.	539/.	711/.	934/.	1165/.	1424/.	1703/.
Price of Branch (flanged) ...	48/.	106/.	130/.	170/.	201/.	268/.	352/.	511/.	629/.	758/.	907/.	1077/.

For intermediate and larger sizes see Section "S" of large Catalogue.

PRICES OF WROUGHT STEEL FLANGES ON APPLICATION

IRON and STEEL PIPES with SCREWED FLANGES

FOR WORKING PRESSURES UP TO 100 lbs.



SCREWED-ON FLANGE JOINT.

Pipes with flanges screwed on, as shown, are suitable for moderate steam pressures.

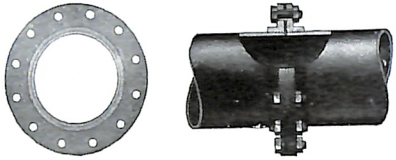
These Pipes and Flanges with other trade list fittings may be had from stock from any of our stores, so that installations for moderate pressures can be made up at any time to suit requirements.

NOM. BORE OF PIPE in ins.	2	2½	3	3½	4	5	6	7	8	9	10	12
Thickness of Pipe	5 W.G.	5 W.G.	5 W.G.	5 W.G.	5 W.G.	5 W.G.	5 W.G.	¼"	¼"	¼"	¼"	5/16"
Price per foot of Pipe	2/3	2/10	3/5	4/.	4/6	5/6	6/7	8/11	10/2	11/5	12/8	19/7
Diameter of Flanges in ins.	6	6½	7¼	8	8½	10	11	12	13¼	14½	16	18
Diameter of Bolt Circle ,, ,,	4½	5	5¾	6½	7	8¼	9¼	10¼	11½	12¾	14	16
Number and Size of Bolts ...	4-5/8"	4-5/8"	8-5/8"	8-5/8"	8-5/8"	8-¾"	8-¾"	12-¾"	12-¾"	12-¾"	12-⅞"	16-⅞"
Price per pair of Flanges ...	12/.	19/.	22/.	25/.	28/.	52/.	62/.	75/.	102/.	117/.	142/.	215/.
Price of Bend (flanged) ...	24/.	36/.	43/.	53/.	62/.	105/.	145/.	205/.	266/.	325/.	404/.	633/.
Price of Cast Iron Tee ...	29/.	36/.	40/.	47/.	51/.	79/.	99/.	115/.	131/.	157/.	172/.	239/.
Price of Wrot. Steel Tee ...	57/.	90/.	103/.	118/.	134/.	198/.	239/.	290/.	367/.	409/.	481/.	695/.
Price of Branch (flanged) ...	43/.	85/.	99/.	110/.	120/.	151/.	181/.	212/.	252/.	287/.	335/.	506/.

For intermediate and larger sizes, see Section "S" of large Catalogue.

IRON AND STEEL PIPES with SCREWED or RIVETED FLANGES

FOR EXHAUST STEAM AND WATER CIRCULATION.



STAMPED STEEL FLANGE JOINT.

Pipes with flanges screwed on (or in larger sizes riveted on) are suitable for Exhaust Steam, Feed Suction, Water Circulation, and General Water Service Pipes in Engine and Boiler House. For Pipes connecting Engines and Condensers direct, where it is essential to avoid the small leakage inseparable from light riveted work; and which is difficult to locate under vacuum; we can supply pipes above 12″ with screwed flanges.

	Flanges screwed on					Flanges riveted on						
NOM. BORE OF PIPE in ins.	4	6	8	10	12	8	10	12	14	16	18	20
Thickness of Pipe	5 W.G.	5 W.G.	¼″	¼″	5/16″							
Price per foot of pipe	4/6	6/7	10/2	12/8	19/7							
Diameter of Flanges in ins.	8½	11	13¼	16	18							
Diameter of Bolt Circle "	7	9¼	11½	14	16							
Number and Size of Bolts ...	4-⅝″	8-⅝″	8-⅝″	8-¾″	12-¾″							
Price per pair of Flanges ...	27/.	61/.	79/.	119/.	152/.							
Price of Wrot. Steel Bend (flanged)	61/.	144/.	242/.	380/.	567/.							
Price of Cast Iron Bend	35/.	68/.	90/.	120/.	168/.							
Price of Wrot. Steel Tee (flanged)	133/.	237/.	333/.	447/.	601/.							
Price of Cast Iron Tee	51/.	99/.	131/.	172/.	239/.							

PARTICULARS AND PRICES ON APPLICATION

For intermediate and larger sizes, see Section "S" of large Catalogue.

DIAMETERS AND DRILLING OF BRITISH STANDARD PIPE FLANGES.

TABLE I.

FOR WORKING STEAM PRESSURES UP TO 55 LBS. PER SQ. INCH AND FOR WATER PRESSURES UP TO 200 LBS. PER SQ. INCH

Internal Diameter of Pipe	Diam. of Flange	Diam. of Bolt Circle	No. of Bolts	Diam. of Bolts
Ins.	Ins.	Ins.		Ins.
½	3¾	2⅝	4	½
¾	4	2⅞	4	½
1	4½	3¼	4	½
1¼	4¾	3 7/16	4	½
1½	5¼	3⅞	4	½
1¾	5½	4⅛	4	½
2	6	4½	4	⅝
2½	6½	5	4	⅝
3	7¼	5¾	4	⅝
3½	8	6½	4	⅝
4	8½	7	4	⅝
4½	9	7½	8	⅝
5	10	8¼	8	⅝
6	11	9¼	8	⅝
7	12	10¼	8	⅝
8	13¼	11½	8	⅝
9	14½	12¾	8	⅝
10	16	14	8	¾
11	17	15	8	¾
12	18	16	12	¾
13	19¼	17¼	12	¾
14	20¾	18½	12	⅞
15	21¾	19½	12	⅞
16	22¾	20½	12	⅞
17	24	21¾	12	⅞
18	25¼	23	12	⅞
19	26½	24	12	⅞
20	27¾	25¼	16	⅞
21	29	26½	16	⅞
22	30	27½	16	1
23	31	28½	16	1
24	32½	29¾	16	1

TABLE II.

FOR WORKING STEAM PRESSURES UP TO 125 LBS., 225 LBS., AND 325 LBS. PER SQ. INCH.

Internal Diameter of Pipe	Diam. of Flange	Diam. of Bolt Circle	No. of Bolts	Diam. of Bolts	
				125 lb. 225 „	325 lb.
Ins.	Ins.	Ins.		Ins.	Ins.
½	3¾	2⅝	4	½	½
¾	4	2⅞	4	½	½
1	4¾	3 7/16	4	⅝	⅝
1¼	5¼	3⅞	4	⅝	⅝
1½	5½	4⅛	4	⅝	⅝
1¾	6	4½	4	⅝	⅝
2	6½	5	4	⅝	¾
2½	7¼	5¾	8	⅝	¾
3	8	6½	8	⅝	¾
3½	8½	7	8	⅝	¾
4	9	7½	8	⅝	¾
4½	10	8¼	8	¾	⅞
5	11	9¼	8	¾	⅞
6	12	10¼	12	¾	⅞
7	13¼	11½	12	¾	⅞
8	14½	12¾	12	¾	⅞
9	16	14	12	⅞	1
10	17	15	12	⅞	1
11	18	16	16	⅞	1
12	19¼	17¼	16	⅞	1
13	20¾	18½	16	1	1⅛
14	21¾	19½	16	1	1⅛
15	22¾	20½	16	1	1⅛
16	24	21¾	20	1	1⅛
17	25¼	23	20	1	1⅛
18	26½	24	20	1⅛	1¼
19	27¾	25¼	20	1⅛	1¼
20	29	26½	24	1⅛	1¼
21	30	27½	24	1⅛	1¼
22	31	28½	24	1⅛	1¼
23	32½	29¾	24	1¼	1⅜
24	33½	30¼	24	1¼	1⅜

FOR NOTES, SEE PAGE 51.

DIAMETER AND DRILLING OF BRITISH STANDARD PIPE FLANGES.

WELDED-ON FLANGES FOR PIPE LINES.

TABLE III.

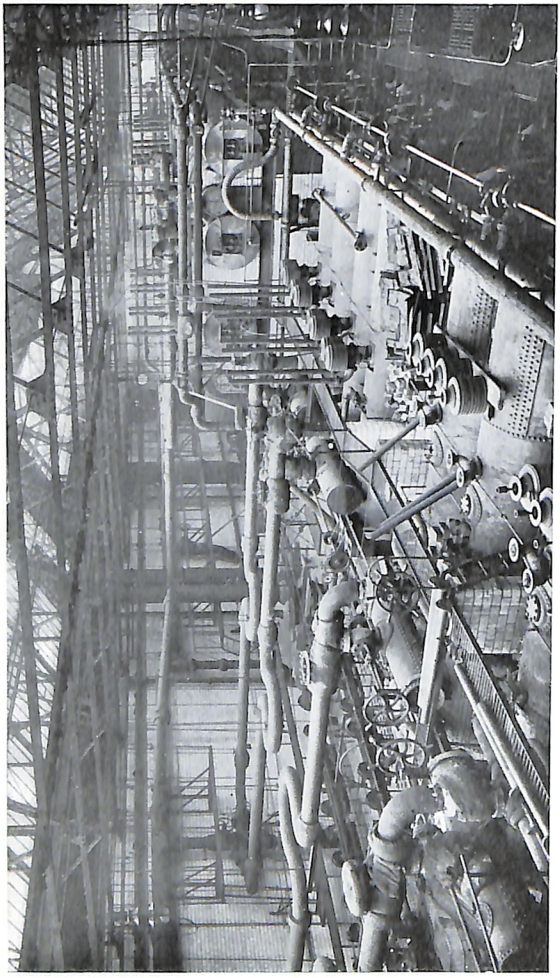
FOR WORKING STEAM PRESSURES UP TO 125 LBS., 225 LBS., and 325 LBS. PER SQ. INCH

Internal Diameter of Pipe	Diam. of Flange	Diam. of Bolt Circle	No. of Bolts	Diam. of Bolts	
				125lb & 225lb	325 lb.
Ins.	Ins.	Ins.		Ins.	Ins.
2	6	4½	4	⅝	⅝
2½	6½	5	4	⅝	¾
3	7¼	5¾	8	⅝	¾
3½	8	6½	8	⅝	¾
4	8½	7	8	⅝	¾
4½	9	7½	8	⅝	¾
5	10	8¼	8	¾	⅞
6	11	9¼	8	¾	⅞
7	12	10¼	12	¾	⅞
8	13¼	11½	12	¾	⅞
9	14½	12¾	12	¾	⅞
10	16	14	12	⅞	1
11	17	15	12	⅞	1
12	18	16	16	⅞	1
13	19¼	17¼	16	⅞	1
14	20¾	18½	16	1	1⅛
15	21¾	19½	16	1	1⅛
16	22¾	20½	16	1	1⅛
17	24	21¾	20	1	1⅛
18	25¼	23	20	1	1⅛
19	26½	24	20	1⅛	1¼
20	27¾	25¼	20	1⅛	1¼
21	29	26½	24	1⅛	1¼
22	30	27½	24	1⅛	1¼
23	31	28½	24	1⅛	1¼
24	32½	29¾	24	1¼	1⅜

NOTES for TABLES I., II. and III.

BOLT HOLES—FOR ½ IN. AND ⅝ IN. BOLTS, THE DIAMS. OF THE HOLES TO BE 1/16 IN. LARGER THAN THE DIAMS. OF THE BOLTS, AND FOR LARGER SIZES OF BOLTS ⅛ IN.

BOLT HOLES TO BE DRILLED OFF CENTRE LINES.



MAIN STEAM PIPE INSTALLATION.

STEEL PIPES

FOR GAS, WATER, AIR,

SEWAGE, etc.

LAPWELDED STEEL PIPES

FOR GAS, WATER, AIR, SEWAGE, ETC., WITH THE FOLLOWING JOINTS.

STEWARTS' PATENT INSERTED JOINT.

STEWARTS' LONG SLEEVE PATENT JOINT.

STEWARTS' PATENT WELDED JOINT

and other forms of Joints to suit all requirements.

See our Special Catalogue "W" for full particulars of this class of pipe.

SOME ADVANTAGES OF STEEL PIPES.

The superiority of Lapwelded Steel Pipes over rivetted pipes, cast iron pipes, wooden pipes, and steel pipes made by other than the lapwelding process, is well known, but a few of the more important advantages may be here shortly recapitulated :—

(1) The maximum strength—there being no rivets to spring or work loose.

(2) The maximum carrying capacity due to the smooth surface.

The following table, based on figures given in Professor Unwin's "Hydraulics" (A. & C. Black, 1908) pp. 215-217, is of interest in this connection :—

TABLE OF DISCHARGE WITH DIFFERENT SURFACES.

Bore of Pipe assumed ... 12 inches
Length of Pipe " ... 1000 feet

Head	Kind of Pipe	Discharge Galls. per sec.	Percentage Discharge
100 feet	Wrought iron welded ...	123·0	100
"	Riveted	93·2	75·8
"	New cast iron	91·2	74·1
"	Incrusted cast iron ...	58·9	47·9

(3) Resilient under heavy traffic, vibration, subsidence, distortion shocks, etc.

Steel Pipes may bend or flatten, but they will not break.

(4) No trouble regarding white ants, nor shrinkage should the pipe line not be maintained full of water as with wooden pipes.

(5) Saving in transport owing to lighter weight, and saving in cost of joints owing to long lengths in which Lapwelded Steel Pipes are made.

(6) The uniform thickness of Lapwelded Steel Pipes, as compared with the variation in thickness of pipes made by other processes enables a much thinner Lapwelded Steel Pipe to be used with the same factor of safety.

LIFE OF STEEL PIPES.

As to the life of Steel Pipes, all that can be said, is that the oldest and best-known steel pipe lines are in as good condition, and are as free from corrosion now as when they were laid.

Authorities on the subject are agreed that, notwithstanding the treble thickness required for cast-iron as compared with Steel Pipes, the life of the latter will be equally as long as, if not longer than, the former, and this is largely due to the close contact of the protective envelope of solution with the steel when properly applied.

LIGHT STEEL TUBES

WITH

STEWARTS' PATENT INSERTED JOINT,

FOR GAS, WATER, AIR AND SEWAGE MAINS

CANVAS-WRAPPED AND COATED.

COATED.

Nominal Inside DIAMETER Inches	THICKNESS	Weight per foot Plain Tube Approx. lbs.	Weight of Lead for One Joint Approx. lbs.	Weight of Yarn for One Joint ozs.	PRICE Per Foot
2	12 W.G.	2·38	7/8	3/4	1/5
2½	12 "	2·94	1¼	1	1/8
3	12 "	3·49	1¾	1¼	1/11
3½	12 "	4·05	2	1½	2/3
4	11 "	5·12	2¼	1¾	2/9
5	10 "	7·00	3	2	3/10
6	10 "	8·37	3¾	2½	4/8
7	9 "	10·93	4½	3	6/3
8	8 "	13·82	5½	4	7/10
9	3/16"	18·40	7	5	10/6
10	3/16"	20·40	8	6	12/7
11	3/16"	22·40	9	7	13/3
12	3/16"	24·40	10	8	13/10

Tubes are supplied in long random lengths 18 feet and up, coated inside and outside with Dr Angus Smith's solution, and also wrapped with hessian cloth and re-coated, if required.

Lead and yarn also supplied by arrangement.

If lead wire is used for jointing, a good joint can be made with 40% less lead, and double the quantity of yarn specified above.

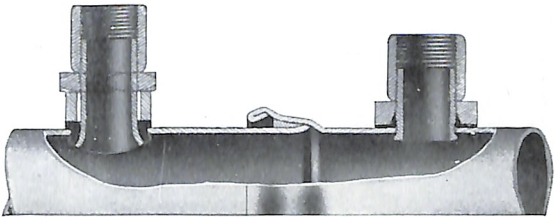
For larger sizes and full particulars of Fittings, see full Catalogue, Section "W."

Large Stocks carried in all our Branches.

BRANCH SERVICE CONNECTIONS

FOR

STEEL WATER AND GAS MAINS.



STEWARTS' WOODALL-PARKINSON'S

PRICE LIST

SIZE	PRICE EACH	SIZE	PRICE EACH	SIZE	PRICE EACH
½ inch	4/9	¾ inch	5/6	1 inch	7/.
1¼ inch	9/.	1½ inch	12/.	2 inch	16/.

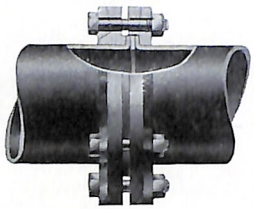
THE STEWARTS' PATENT CONNECTION is suitable for Gas and Water Mains in which the supply can be cut off, or in which the pressure is not sufficient to interfere with the fixing operations.

THE WOODALL-PARKINSON PATENT CONNECTION, while also applicable under like conditions, is such that it can be applied to Mains under Pressure, with the aid of Special Apparatus designed for the purpose.

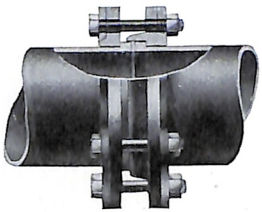
LIGHT STEEL PIPES

WITH

LOOSE FLANGE JOINTS.



Stewarts' No. 1 Loose Flange Joint.



Albion Loose Flange Joint.

Nominal Inside DIAMETER Inches	Standard THICKNESS	Price per foot	Price of one Mild Steel BEND	Price of one Cast Iron ELBOW	Price of one Cast Iron TEE
1½	13 W.G.	1/2	11/.	14/6	20/.
2	12 "	1/4	13/.	16/6	22/.
2½	11 "	1/8	16/6	18/6	24/6
3	10 "	2/1	20/.	21/6	29/.
3½	10 "	2/6	27/.	25/.	33/6
4	9 "	3/2	35/.	30/.	40/.
4½	8 "	4/.	45/.	36/.	49/.
5	8 "	4/9	57/6	42/.	56/.
5½	7 "	5/6	80/.	48/.	64/.
6	7 "	6/4	95/.	55/.	74/.
7	6 "	8/6	130/.	70/.	95/.
8	6 "	11/6	190/.	90/.	120/.
9	4 "	14/.	260/.	105/.	140/.
10	3 "	18/6	330/.	125/.	165/.

Tubes are supplied in long random lengths 18 feet and up, coated inside and outside with Dr Angus Smith's solution, and also wrapped with hessian cloth and re-coated, if required.

Prices per foot include Flanges, Bolts, Nuts, and Rubber Joint Washer.

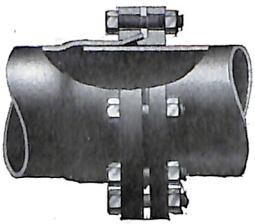
Divided Flanges can be supplied if required to reduce freight charges.

For larger sizes and full particulars of Fittings, see full Catalogue Section "W."

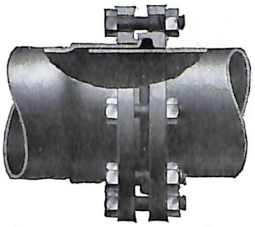
PRESSURE, WATER, AND AIR MAINS

WITH

PATENT EXPANSION JOINTS.



DREES' PATENT.



STEWARTS' PATENT.

Nominal Inside DIAMETER	4″	5″	6″	7″	8″	9″	10″	12″
Standard THICKNESS	11 W.G.	10 W.G.	10 W.G.	9 W.G.	8 W.G.	3/16″	3/16″	3/16″
Price per ft. including JOINT	3/3	4/6	5/9	7/3	9/	11/3	12/6	15/3

As a general rule no provision is necessary for expansion except for steam pipes. Water, gas, and air mains, if laid underground, readily take up what little expansion or contraction occurs, but in dealing with such problems as the installation of miles of power pipe lines, for water and air, which are usually laid on concrete piers well above ground to facilitate painting and repairs, it is found necessary to provide one of the special forms of joint above illustrated, which are sufficient to efficiently negotiate the small amount of expansion involved.

These joints are particularly suitable for light steel pipes, as illustrated on pages 48 and 49.

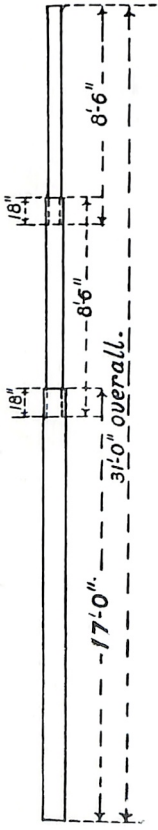
For larger sizes and full particulars see full Catalogue, Section "W."

LAYING PIPE LINE THROUGH ROUGH COUNTRY

Tubular Structures and Poles.

TRAMWAY POLES.

The British Engineering Standards Committee have fixed a Standard for Tramway Poles, and, for the convenience of buyers, we give below particulars of Poles to comply with the



BRITISH STANDARD SPECIFICATION.

The Poles are made from Mild Steel Tube, and are in three sections, of the lengths shewn on sketch alongside, swaged together hot, so as to make a perfectly close joint.

They are made in three grades of strength, viz:—

	LIGHT	MEDIUM	HEAVY
Bottom Section ...	7½" o/d.	8½" o/d.	9½" o/d.
Middle " ...	6½" o/d.	7½" o/d.	8½" o/d.
Top " ...	5½" o/d.	6½" o/d.	7½" o/d.
Weight	672 lbs.	900 lbs.	1129 lbs.
Deflection Load ...	750 lbs.	1250 lbs.	2000 lbs.
Permanent Set Load	1000 lbs.	1750 lbs.	2500 lbs.

TESTS UNDER ABOVE LOADS.

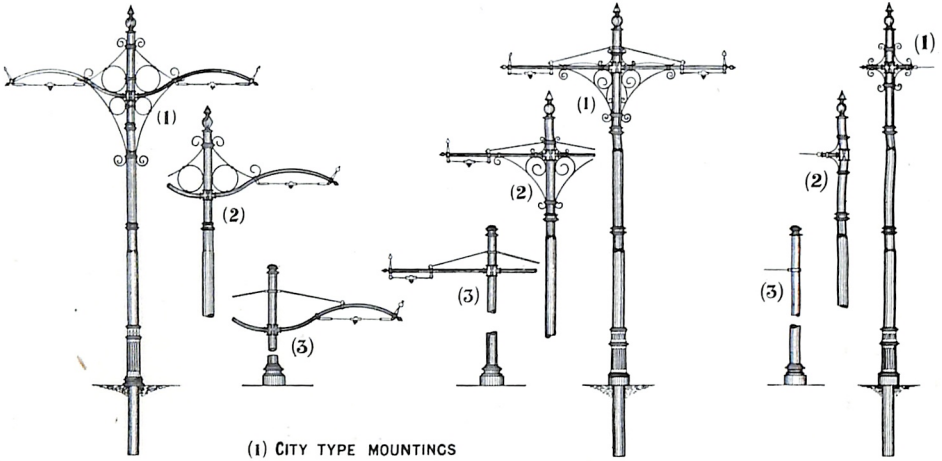
Temporary Deflection not to exceed six inches (6").

Permanent Set not to exceed half an inch (½").

CITY, SUBURBAN AND COUNTRY TYPE MOUNTINGS

FOR

BENT AND STRAIGHT ARM BRITISH STANDARD TRAMWAY POLES.



BENT ARM TRAMWAY POLE.

(1) CITY TYPE MOUNTINGS
(2) SUBURBAN TYPE MOUNTINGS.
(3) COUNTRY TYPE MOUNTINGS.

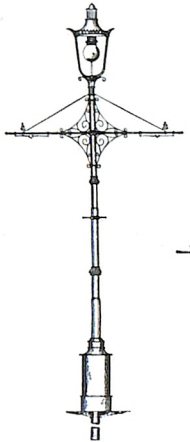
STRAIGHT ARM TRAMWAY POLE.

SPAN WIRE TRAMWAY POLE.

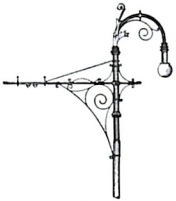
TYPICAL EXAMPLES OF TUBULAR STEEL THREE SECTION POLES

FOR

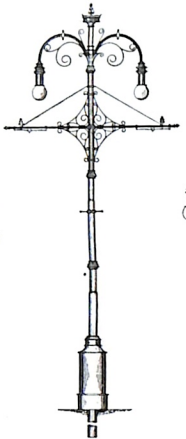
STREET LIGHTING AND TRACTION PURPOSES.



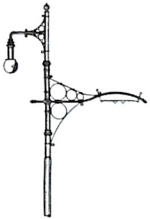
(1)
COMBINED ELECTRIC LAMP
AND
TROLLEY WIRE STANDARD.



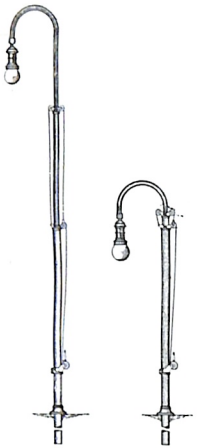
(2)
COMBINED LAMP POST
AND
TRAMWAY POLE.



(3)
COMBINED LAMP VENTILATOR.
AND
TROLLEY WIRE STANDARD.

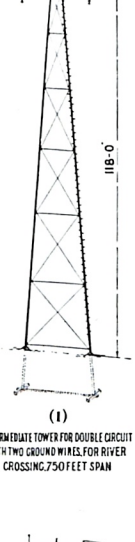


(4)
COMBINED TRAMWAY STANDARD
AND
ELECTRIC LAMP PILLAR.



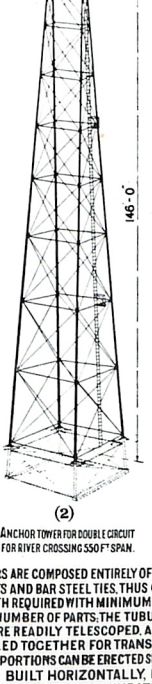
(5)
COLLAPSIBLE ELECTRIC
LAMP STANDARD.

TYPICAL EXAMPLES OF TUBULAR STEEL ELECTRIC TRANSMISSION TOWERS.



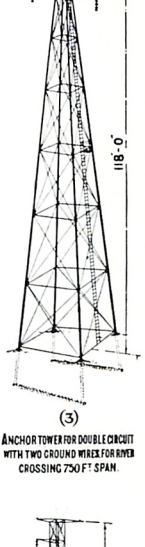
(1)

INTERMEDIATE TOWER FOR DOUBLE CIRCUIT WITH TWO GROUND WIRES, FOR RIVER CROSSING, 750 FEET SPAN



(2)

ANCHOR TOWER FOR DOUBLE CIRCUIT FOR RIVER CROSSING 550 FT SPAN.



(3)

ANCHOR TOWER FOR DOUBLE CIRCUIT WITH TWO GROUND WIRES FOR RIVER CROSSING 750 FT SPAN.

(4)

INTERMEDIATE TOWER FOR SINGLE CIRCUIT WITH TWO GROUND WIRES, 400 FT SPAN.

THESE TOWERS ARE COMPOSED ENTIRELY OF TUBULAR STEEL STRUTS AND BAR STEEL TIES, THUS GIVING THE STRENGTH REQUIRED WITH MINIMUM WEIGHT AND LEAST NUMBER OF PARTS; THE TUBULAR MEMBERS ARE READILY TELESCOPED, AND ROD TIES BUNDLED TOGETHER FOR TRANSPORT. FOUNDATION PORTIONS CAN BE ERECTED SEPARATELY. THE TOWERS BUILT HORIZONTALLY, RAISED TO POSITION AND SECURED TO FOUNDATIONS WITH PROTECTING SLEEVES AT GROUND LINE.

(5)

ANCHOR TOWER FOR SINGLE CIRCUIT WITH TWO GROUND WIRES, 400 FT SPAN.

STEWARTS and LLOYDS (Australia) Limited L&L

TUBULAR CONSTRUCTION

AS APPLIED TO BUILDING.

COLUMNS

Stronger than the usual type of Girders at half the cost.

TUBULAR ROOF CONSTRUCTION.

TUBULAR FRAMEWORK OF BUILDINGS

Quoted for complete,

IS SUITABLE FOR HAY SHEDS, WORKSHOPS, MACHINERY SHEDS, etc.

TUBULAR TANK STANDS.

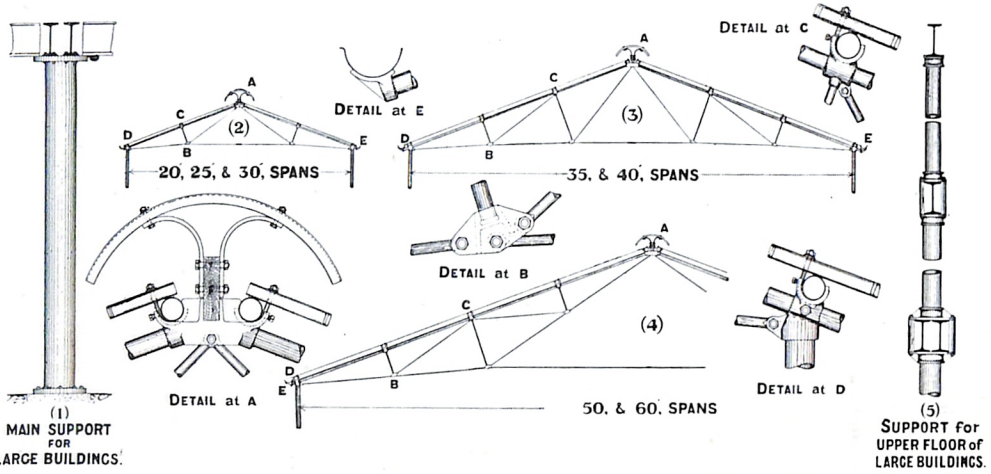
TUBULAR GATES.

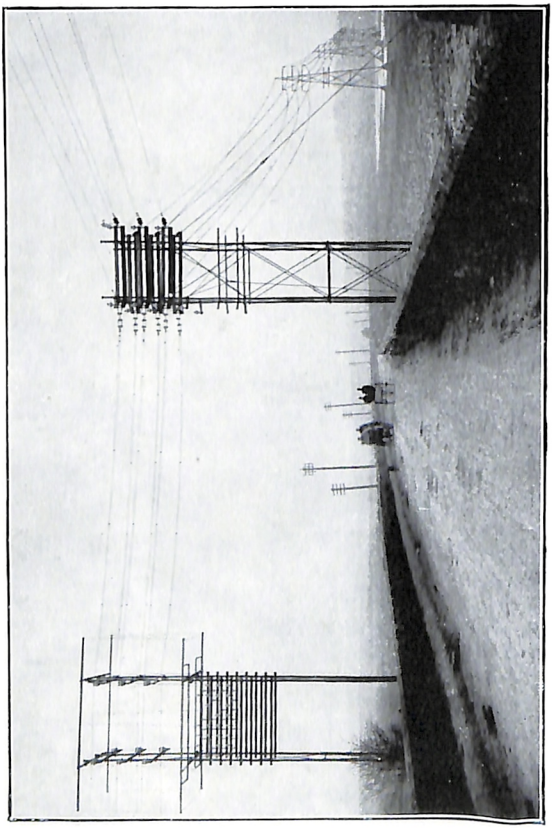
We shall be glad to submit Estimates on receipt of particulars and requirements.

ALL KINDS OF TUBULAR CONSTRUCTION

can be undertaken in our Branch Stores.

LIGHT TUBULAR STEEL ROOF TRUSSES AND SUPPORTS.

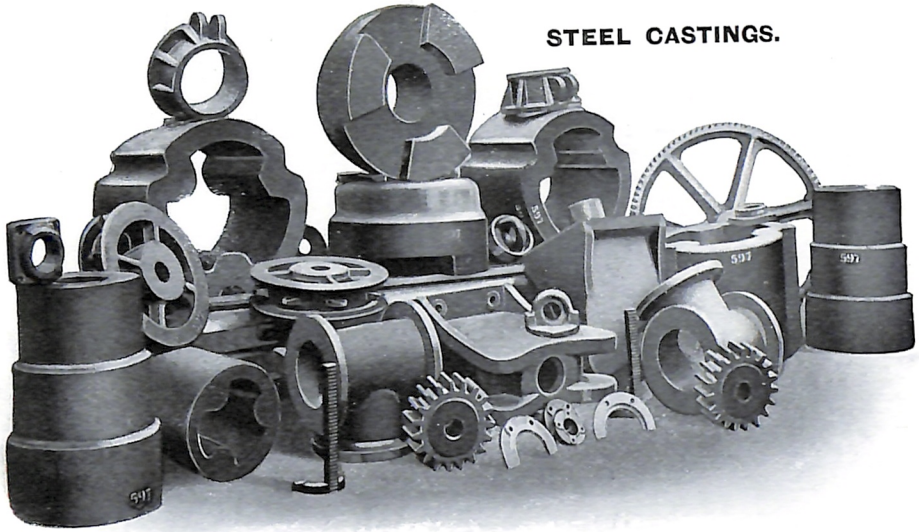




STEEL TOWERS FOR FIXED INSULATORS

Steel Castings and Master's Valves.

STEEL CASTINGS.



THIS ILLUSTRATION SHOWS SOME CASTINGS WHICH WE HAVE RECENTLY SUPPLIED.
Prices on application.

STEEL CASTINGS.

We supply Steel Castings weighing up to 4 tons.

High Permeability Castings for Electrical Work.—We shall be pleased to submit a copy of our Permeability Curve on request.

Marine Castings—To Admiralty, Board of Trade, Lloyds, British Corporation, etc requirements.

Gearing of all kinds, machine moulded from our tooth blocks, or from customer's pattern.

Turbine Castings, Bucket Wheels, etc.

Wheel Blanks for machine-cut Gears.

Hydraulic Castings, such as Cylinders, Glands, and Flanges.

Pipe and Valve Castings.

Castings for Mining Purposes.—Roller Shells, Mantles and Concaves for Gates, Rock-Breakers, Toggles, Side Cheeks and Steel Jaws of Stone-Breakers.

Manganese Steel Castings for Dredging or Crushing Machinery, or for any purpose where the castings require to stand heavy wear and still be tough.

General Machinery Castings, having a tensile strength of 30 to 35 tons per square inch, and an elongation of 10 to 15 per cent. in a length of two inches.

Board of Trade and Lloyds' Surveyors, in investigating the quality of our steel, found the average of 8 tests to be as follows:—

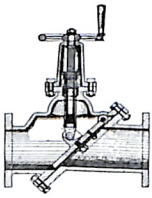
Diameter of Bar	·97 inch
Area of Bar	·738 sq. inch
Breaking stress in tons per square inch ...	29·6
Percentage of Elongation on 3½ inches ...	32·2
Percentage of Contraction of area	41·

Rectangular Bars, 1″ × ¾″ bent through an angle of 180° without fracture.

MASTER'S PATENT CYANIDE VALVE

WITH INSIDE SCREW

Valves and Faces of Rubber. All other parts Cast Iron



These Valves are specially designed for the conveyance of Cyanide Liquors, and are also suitable for Water Service generally at low pressures, particularly where silt or other solids are to be contended with.

STANDARD SIZES AND WEIGHTS

BORE ... ... in ins.	2½	3	4	5	6	7	8	9	10	12
Length between Flanges, in ins.	9	10½	12 3/16	15½	19⅞	20¼	22½	25½	27½	30
Diameter of Flanges in ins.	7	7½	9	10	11	12	13	15	17	19
WEIGHT ... ... in lbs.	38	56	103	136	198	272	336	412	476	700
PRICE ... ... each	56/.	59/6	74/6	111/.	139/.	212/.	242/.	355/.	400/.	535/.

These Patent Valves have the following advantages:—

They have a full-way opening, reducing to a minimum the chance of silting up.

The Valve Faces and Seats are of rubber, thus avoiding the destructive action of grit, which is a well-known difficulty with metallic valves of any kind.

The Valves, being in two sections with angled joint in centre, can be readily removed for renewal of seats and other repairs, without disturbing the rest of the pipe line.

The Valves are quickly opened and closed, the operating spindles having a multiple square thread and hand-wheels fitted with rotating handles.

The screwed spindle and nut are protected, both from internal corrosion and sand, and from external grit and dust, by means of the hollow spindle and covering bonnet shown.

The metallic portions are of cast iron, except the bolts, nuts and spindles, which are of forged steel.

The Valve has been designed with a fall towards the two ends, to prevent the lodgment of sediment.

STEEL PLATES.

BRANDS OF STEEL.

SHIP, TANK AND BRIDGE PLATES

BOILER PLATES

FIREBOX PLATES

SPECIAL PLATES

All our Steel is made by the **Open Hearth Process.** We supply Steel Plates of all kinds up to 6″ thick, to pass the surveys of Lloyds, Board of Trade, Bureau Veritas, the British Admiralty, War Office, India Office, Australian, New Zealand, and other Colonial Railways, &c., &c. We make a **speciality of Boiler Plates and Soft Welding and Flanging Plates for Furnaces, &c.**

Our brand of **Boiler Plates is on the approved lists of Board of Trade and British Admiralty,** and is generally accepted by Boilermakers at home and abroad as equal to any in the trade.

Large Stocks held by all our Branch Stores.

STOCK LIST ON APPLICATION.

WEIGHTS OF IRON AND STEEL PLATES.

THICKNESS	Lbs. per Square Foot	
Ins.	IRON	STEEL
1/16	2·50	2·55
1/8	5·00	5·10
3/16	7·50	7·65
1/4	10·00	10·20
5/16	12·50	12·75
3/8	15·00	15·30
7/16	17·50	17·85
1/2	20·00	20·40
5/8	25·00	25·50
3/4	30·00	30·60
7/8	35·00	35·70
1	40·00	40·80

STOCK LIST ON APPLICATION.

AREAS OF CIRCLES.

Diam. ... Ins.	0	1	2	3	4	5	6	7	8	9	10	11
Diam. Feet	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.
1 Foot	·7854	·922	1·07	1·23	1·40	1·58	1·77	1·97	2·18	2·41	2·64	2·89
2 Feet	3·14	3·41	3·69	3·98	4·28	4·59	4·91	5·24	5·59	5·94	6·30	6·68
3 "	7·07	7·47	7·88	8·30	8·73	9·17	9·62	10·08	10·56	11·04	11·54	12·05
4 "	12·57	13·10	13·64	14·19	14·75	15·32	15·90	16·50	17·10	17·72	18·35	18·99
5 "	19·64	20·29	20·97	21·65	22·34	23·04	23·76	24·48	25·22	25·97	26·73	27·49
6 "	28·27	29·06	29·87	30·68	31·50	32·34	33·18	34·04	34·91	35·78	36·67	37·57
7 "	38·48	39·41	40·34	41·28	42·24	43·20	44·18	45·17	46·16	47·17	48·19	49·22
8 "	50·27	51·32	52·38	53·46	54·54	55·64	56·75	57·86	58·99	60·13	61·28	62·44
9 "	63·62	64·80	66·00	67·20	68·42	69·64	70·88	72·13	73·39	74·66	75·94	77·24
10 "	78·54	79·85	81·18	82·52	83·86	85·22	86·59	87·97	89·36	90·76	92·17	93·60
11 "	95·03	96·48	97·93	99·40	100·88	102·37	103·87	105·38	106·90	108·43	109·98	111·53
12 "	113·10	114·67	116·26	117·86	119·47	121·09	122·72	124·36	126·01	127·68	129·35	131·04
13 "	132·73	134·44	136·16	137·89	139·63	141·38	143·14	144·91	146·69	148·49	150·29	152·11

TABLES OF WEIGHTS.

COMPARATIVE TABLE OF THICKNESSES.

Imperial Standard Wire Gauge	Equivalents in Fractions of an Inch	Equivalents in Decimals of an Inch	Equivalents in French Millimètres
18	$\frac{3}{64}$″	·048	1·219
17	$\frac{3}{64}$″ full	·056	1·422
16	$\frac{1}{16}$″	·064	1·626
15	$\frac{1}{16}$″ full	·072	1·828
14	$\frac{5}{64}$″	·080	2·032
13	$\frac{3}{32}$″	·092	2·337
12	$\frac{3}{32}$″ full	·104	2·641
11	$\frac{7}{64}$″ full	·116	2·946
10	$\frac{1}{8}$″	·128	3·251
9	$\frac{9}{64}$ full	·144	3·657
8	$\frac{5}{32}$″ full	·160	4·064
7	$\frac{11}{64}$″ full	·176	4·470
6	$\frac{3}{16}$″ full	·192	4·877
5	$\frac{13}{64}$″ full	·212	5·385
4	$\frac{15}{64}$″	·232	5·893
3	$\frac{1}{4}$″	·252	6·400
2	$\frac{9}{32}$″ bare	·276	7·010
1	$\frac{17}{64}$″ full	·300	7·620

STEWARTS and LLOYDS (Australia) Limited L & L

THEORETICAL WEIGHTS OF

WEIGHT PER

Ext'l Diam.	Thicknesses of Tubes in Wire Gauges, and										
Tubes. inches.	1/16" .0625	16 W.G .064	15 W.G .072	5/64" .078	14 W.G .080	13 W.G .092	3/32" .094	12 W.G .104	7/64" .109	11 W.G .116	1/8" .125
1	0·614	0·627	0·700	0·754	0·771	0·875	0·890	0·976	1·020	1·074	1·145
1¼	0·777	0·795	0·888	0·959	0·980	1·116	1·135	1·248	1·306	1·378	1·473
1½	0·941	0·962	1·077	1·163	1·190	1·356	1·381	1·520	1·593	1·681	1·800
1¾	1·104	1·130	1·265	1·368	1·399	1·597	1·626	1·793	1·879	1·985	2·127
2	1·268	1·297	1·454	1·572	1·609	1·838	1·872	2·065	2·165	2·289	2·454
2¼	1·432	1·465	1·642	1·777	1·818	2·079	2·117	2·337	2·452	2·592	2·782
2½	1·595	1·633	1·831	1·981	2·027	2·320	2·362	2·609	2·738	2·896	3·109
2¾	1·759	1·800	2·019	2·186	2·237	2·561	2·608	2·882	3.025	3·200	3·436
3	1·923	1·968	2·208	2·390	2·446	2·802	2·853	3·154	3·311	3·503	3·763
3¼	2·086	2·135	2·396	2·595	2·656	3·042	3·099	3·426	3·507	3·807	4·091
3½	2·250	2·303	2·585	2·799	2·865	3·283	3·344	3·699	3·884	4·111	4·418
3¾	2·413	2·470	2·773	3·004	3·075	3·524	3·590	3·971	4·170	4·415	4·745
4	...	2·638	2·962	3·208	3·284	3·765	3·835	4·243	4·456	4·718	5·072
4¼	...	2·805	3·150	3·413	3·494	4·006	4·081	4·515	4·743	5·022	5·400
4½	...	2·973	3·339	3·618	3·703	4·247	4·326	4·788	5·029	5·326	5·727
4¾	...	3·140	3·527	3·822	3·913	4·488	4·572	5·060	5·315	5·629	6·054
5	...	...	3·716	4·027	4·122	4·728	4·817	5·332	5·602	5·933	6·381
5¼	...	...	3·904	4·231	4·331	4·969	5·062	5·604	5·888	6·237	6·709
5½	...	...	4·093	4·436	4·541	5·210	5·308	5·877	6·174	6·540	7·036
5¾	...	...	4·281	4·640	4·750	5·451	5·553	6·149	6·461	6·844	7·363
6	...	...	...	4·845	4·960	5·692	5·799	6·421	6·747	7·148	7·690
6¼	...	...	...	5·049	5·169	5.933	6·044	6·694	7·033	7·452	8·018
6½	...	...	...	5·254	5·379	6·173	6·290	6·966	7·320	7·755	8·345
6¾	...	...	...	5·458	5·588	6·414	6·535	7·238	7·606	8.059	8·672
7	...	...	...	...	5·798	6·655	6·781	7·510	7·892	8·363	8·999
7¼	...	...	...	...	6·007	6·896	7·026	7·783	8·179	8·666	9·327
7½	...	...	...	...	6·216	7·137	7·271	8·055	8·465	8·970	9·654
7¾	...	...	...	...	6·426	7·378	7·517	8·327	8·752	9·274	9·981
8	...	...	...	...	...	7·619	7·762	8·599	9·038	9·577	10·308
8¼	...	...	...	...	...	7·859	8·008	8·872	9·324	9·881	10·636
8½	...	...	...	...	...	8·100	8·253	9·144	9·611	10·185	10·963
8¾	...	...	...	...	...	8·341	8·499	9·416	9·897	10·489	11·290
9	...	...	...	...	...	...	8·744	9·689	10·183	10·792	11 617
9¼	...	...	...	...	...	...	8·990	9·961	10·470	11·096	11·945
9½	...	...	...	...	...	...	9·235	10·233	10·756	11·400	12·272
9¾	...	...	...	...	...	...	9·481	10·505	11·042	11·703	12·599
10	...	...	...	...	...	...	...	10·778	11·329	12·007	12·926
10¼	...	...	...	...	...	...	...	11·050	11·615	12··11	13·254
10½	...	...	...	...	...	...	...	11·322	11·901	12·614	13·581
10¾	...	...	...	...	...	...	...	11·595	12·188	12·918	13·908

For each Fraction of an Inch

3/16	0·123	0·126	0·141	0·153	0·157	0·181	0·184	0·204	0·215	0·228	0·245
1/8	0·082	0·084	0·094	0·102	0·105	0·120	0·123	0·136	0·143	0·152	0·164
1/16	0·041	0·042	0·047	0·051	0·052	0·060	0·061	0·068	0·072	0·076	0·082

If Inside Diameter of Tube is given, take

	·082·	·086	·109	·128	·134	·177	·184	·227	·251	·282	·327

To obtain weight of Tubes in Kilos per Mètre.

STEWARTS and LLOYDS (Australia) Limited L&L

WROUGHT IRON TUBES.

FOOT IN LBS.

IN FRACTIONS AND DECIMALS OF AN INCH.

10 W G ·128	9/64" ·141	9 W.G ·144	5/32" ·156	8 W.G ·160	11/64" ·172	7 W.G ·176	3/16" ·187	6 W.G ·192	13/64" ·203	Ext'l Diam. of Tubes. inches
1·169	1·265	1·291	1·381	1·407	1·490	1·519	1·595	1·625	1·695	1
1·504	1·634	1·668	1·790	1·826	1·940	1·979	2·086	2·127	2·227	1¼
1·839	2·002	2·045	2·199	2·245	2·390	2·440	2·577	2·630	2·759	1½
2·174	2·370	2·422	2·608	2·664	2·840	2·901	3·068	3·133	3·290	1¾
2·509	2·738	2·799	3·017	3·083	3·290	3·362	3·559	3·635	3·822	2
2·844	3·106	3·176	3·426	3·502	3·740	3·823	4·050	4·138	4·354	2¼
3·179	3·474	3·553	3·835	3·921	4·190	4·283	4·541	4·640	4·886	2½
3·514	3·843	3·930	4·244	4·340	4·640	4·744	5·031	5·143	5·417	2¾
3·850	4·211	4·307	4·653	4·758	5·090	5·205	5·522	5·646	5·949	3
4·185	4·579	4·684	5·062	5·177	5·540	5·666	6·013	6·148	6·481	3¼
4·520	4·947	5·061	5·471	5·596	5·990	6·126	6·504	6·651	7·013	3½
4·855	5·315	5·438	5·880	6·015	6·440	6·587	6·995	7·154	7·545	3¾
5·190	5·683	5·815	6·289	6·434	6·890	7·048	7·486	7·656	8·076	4
5·525	6·051	6·192	6·699	6·853	7·340	7·509	7·977	8·159	8·608	4¼
5·860	6·420	6·569	7·108	7·272	7·790	7·970	8·468	8·662	9·140	4½
6·195	6·788	6·946	7·517	7·691	8·240	8·430	8·958	9·164	9·672	4¾
6·530	7·156	7·323	7·926	8·109	8·690	8·891	9·449	9·667	10·203	5
6·865	7·524	7·700	8·335	8·528	9·140	9.352	9·940	10·170	10·735	5¼
7·201	7·892	8·077	8·744	8·947	9·590	9·813	10·431	10·672	11·267	5½
7·536	8·260	8·454	9·153	9·366	10·040	10·273	10·922	11·175	11·799	5¾
7·871	8·628	8·831	9·562	9·785	10·490	10·734	11·413	11·678	12·330	6
8·206	8·997	9·208	9·971	10·204	10·940	11·195	11·904	12·180	12·862	6¼
8·541	9·365	9·585	10·380	10·623	11·390	11·656	12·395	12·683	13·394	6½
8·876	9·733	9·962	10·789	11·042	11·840	12·117	12·885	13·186	13·926	6¾
9·211	10·101	10·339	11·198	11·460	12·290	12·577	13·376	13·688	14·458	7
9·546	10·469	10·716	11·607	11·879	12·740	13·038	13·867	14·191	14·989	7¼
9·881	10·837	11·093	12·017	12·298	13·190	13·499	14·358	14·693	15·521	7½
10·216	11·206	11·470	12·426	12·717	13·640	13·960	14·849	15·196	16·053	7¾
10·552	11·574	11·847	12·835	13·136	14·090	14·420	15·340	15·699	16·585	8
10·887	11·942	12·224	13·244	13·555	14·540	14·881	15·831	16·201	17·116	8¼
11·222	12·310	12·601	13·653	13·974	14·990	15·342	16·322	16·704	17·648	8½
11·557	12·678	12·978	14·062	14·393	15·440	15·803	16·812	17·207	18·180	8¾
11·892	13·046	13·355	14·471	14·811	15·890	16·263	17·303	17·709	18·712	9
12·227	13·414	13·732	14·880	15·230	16·340	16·724	17·794	18·212	19·244	9¼
12·562	13·783	14·109	15·289	15·649	16·790	17·185	18·285	18·715	19·775	9½
12·897	14·151	14·486	15·698	16·068	17·240	17·646	18·776	19·217	20·307	9¾
13·232	14·519	14·863	16·107	16·487	17·690	18·107	19·267	19·720	20·839	10
13·567	14·887	15·240	16·516	16·906	18·140	18·567	19·758	20·223	21·371	10¼
13·903	15·255	15·617	16·925	17·325	18·590	19·028	20·249	20·725	21·902	10½
14·238	15·623	15·994	17·335	17·744	19·040	19·489	20·739	21·228	22·434	10¾

under ¼" add as under.

0·251	0·276	0·283	0·307	0·314	0·337	0·346	0·368	0·377	0·399	3/16
0·168	0·184	0·188	0·205	0·209	0·225	0·230	0·245	0·251	0·266	⅛
0·084	0·092	0·094	0·102	0·105	0·112	0·115	0·123	0·126	0·133	1/16

weights as above and add as under.

·343	·414	·434	·511	·536	·619	·649	·736	·772	·864	

multiply weight in lbs. per foot by 1·488.

THEORETICAL WEIGHTS OF

WEIGHT PER

Ext'l Diam. of Tubes. Inches	Thicknesses of Tubes in Wire Gauges, and									
	5 W.G '212	7/32" '219	4 W.G '232	15/64" '234	1/4" '250	3 W.G '252	2 W.G '276	9/32" '281	1 W.G '300	5/16" '312
1	1·749	1·790	1·866	1·879	1·963	1·974	2·093	2·117	2·199	2·250
1¼	2·304	2·362	2·473	2·493	2·618	2·634	2·815	2·853	2·984	3·068
1½	2·859	2·935	3·081	3·106	3·272	3·293	3·538	3·590	3·770	3·886
1¾	3·414	3·508	3·688	3·720	3·927	3·953	4·260	4·326	4·555	4·704
2	3·969	4·080	4·295	4·334	4·581	4·613	4·983	5·062	5·341	5·522
2¼	4·525	4·653	4·903	4·947	5·236	5·273	5·705	5·799	6·126	6·340
2½	5·080	5·226	5·510	5·561	5·890	5·932	6·428	6·535	6·911	7·159
2¾	5·635	5·799	6·118	6·174	6·545	6·592	7·151	7·271	7·697	7·977
3	6·190	6·371	6·725	6·788	7.199	7·252	7·873	8·007	8·482	8·795
3¼	6·745	6·944	7·332	7·402	7·854	7·911	8·596	8·744	9·268	9·613
3½	7·300	7·517	7·940	8·015	8·508	8·571	9·318	9.480	10·053	10·431
3¾	7·855	8·089	8·547	8·629	9·163	9·231	10·041	10·216	10·838	11·249
4	8·410	8·662	9·154	9·242	9·817	9·891	10·763	10·953	11·624	12·067
4¼	8·965	9·235	9·762	9·856	10·472	10·550	11·486	11·689	12·409	12·885
4½	9·520	9·807	10·369	10·470	11·126	11·210	12·209	12·425	13·195	13·704
4¾	10·075	10·380	10·976	11·083	11·781	11·870	12·931	13·162	13·980	14·522
5	10·630	10·953	11·584	11·697	12·435	12·530	13·654	13·898	14·765	15·340
5¼	11·185	11·526	12·191	12·310	13·090	13·189	14·376	14·634	15·551	16·158
5½	11·740	12·098	12·799	12·924	13·744	13·849	15·099	15·371	16·336	16·976
5¾	12·295	12·671	13·406	13·538	14·399	14·509	15·822	16·107	17·122	17·794
6	12·850	13·244	14·013	14·151	15·053	15·168	16·544	16·843	17·907	18·612
6¼	13·405	13·816	14·621	14·765	15·708	15·828	17·267	17·580	18·692	19·430
6½	13·960	14·389	15·228	15·378	16·362	16·488	17·989	18·316	19·478	20·249
6¾	14·515	14·962	15·836	15·992	17·017	17·148	18·712	19·052	20·263	21·067
7	15·070	15·534	16·443	16·606	17·671	17·807	19·434	19·789	21·049	21·885
7¼	15·625	16·107	17·050	17·219	18·326	18·467	20·157	20·525	21·834	22·703
7½	16·180	16·680	17·658	17·833	18·980	19·127	20·880	21·261	22·619	23·521
7¾	16·735	17·253	18·265	18·446	19·635	19·786	21·602	21·998	23·405	24·339
8	17·290	17·825	18·872	19·060	20·290	20·446	22·325	22·734	24·190	25·157
8¼	17·845	18·398	19·480	19·674	20·944	21·106	23·047	23·470	24·976	25·975
8½	18·400	18·971	20·087	20·287	21·598	21·766	23·770	24·207	25·761	26·794
8¾	18·955	19·543	20·695	20·901	22·253	22·425	24·492	24·943	26·546	27·612
9	19·510	20·116	21·302	21·514	22·907	23·085	25·215	25·679	27·332	28·430
9¼	20·065	20·689	21·909	22·128	23·562	23·745	25·938	26·416	28·117	29·248
9½	20·620	21·261	22·517	22·742	24·216	24·405	26·660	27·152	28·903	30·066
9¾	21·175	21·834	23·124	23·355	24·871	25·064	27·383	27·888	29·688	30·884
10	21·730	22·407	23·731	23·969	25·525	25·724	28·105	28·625	30·473	31·702
10¼	22·285	22·980	24·339	24·582	26·180	26·384	28·828	29·361	31·259	32·520
10½	22·840	23·552	24·946	25·196	26·834	27·043	29·550	30·097	32·044	33·339
10¾	23·395	24·125	25·554	25.810	27·489	27·703	30·273	30·834	32·830	34·157

For each Fraction of an Inch

3/16	0·416	0·430	0·456	0·460	0·491	0·495	0·542	0·552	0·589	0·614
1/8	0·278	0·286	0·304	0·307	0·327	0·330	0·361	0·368	0·393	0·409
1/16	0·139	0·143	0·152	0·153	0·164	0·165	0·181	0·184	0·196	0·205

If Inside Diameter of Tube is given, take

	·941	1·002	1·127	1·150	1·309	1·330	1·595	1·657	1·885	2·045

To obtain weight of Tubes in Kilos per Mètre,

WROUGHT IRON TUBES.

FOOT IN LBS.

IN FRACTIONS AND DECIMALS OF AN INCH.											Ext'l Diam. of Tubes Inches
11/32" .344	3/8" .375	13/32" .406	7/16" .437	15/32" .469	1/2" .500	17/32" .531	9/16" .562	19/32" .594	5/8" .625		
2·362	2·454	...	...	...	...	...	...	...	...		1
3·262	3·436	3·590	3·722	3·835	3·927	3·999	...	...	...		1¼
4·162	4·418	4·653	4·868	5·062	5·236	5·389	5·522	5·635	5·727		1½
5·062	5·400	5·717	6·013	6·290	6·545	6·780	6·995	7·189	7·363		1¾
5·962	6·381	6·780	7·159	7·517	7·854	8·171	8·468	8·744	8·999		2
6·862	7·363	7·844	8·304	8·744	9·163	9·562	9·940	10·298	10·636		2¼
7·762	8·345	8·907	9·449	9·971	10·472	10·953	11·413	11·853	12·272		2½
8·662	9·327	9·971	10·595	11·198	11·781	12·344	12·885	13·407	13·908		2¾
9·562	10·308	11·035	11·740	12·425	13·090	13·734	14·358	14·962	15·544		3
10·462	11.290	12·098	12·885	13·653	14·399	15·125	15·831	16·516	17·181		3¼
11·362	12·272	13·162	14·031	14·880	15·708	16·516	17·303	18·070	18·817		3½
12·262	13·254	14·225	15·176	16·107	17·017	17·907	18·776	19·625	20·453		3¾
13·162	14·235	15·289	16·322	17·334	18·326	19·298	20·249	21·179	22·089		4
14·062	15·217	16·352	17·467	18·561	19·635	20·689	21·721	22·734	23·726		4¼
14·962	16·199	17·416	18·612	19·789	20·944	22·079	23·194	24·288	25·362		4½
15·862	17·181	18·480	19·758	21·016	22·253	23·470	24·666	25·843	26·998		4¾
16·762	18·162	19·543	20·903	22·243	23·562	24·861	26·139	27·397	28·634		5
17·662	19·144	20·607	22·048	23·470	24·871	26·252	27·612	28·952	30·271		5¼
18·561	20·126	21·670	23·194	24·697	26·180	27·643	29·084	30·506	31·907		5½
19·461	21·108	22·734	24·339	25·925	27·489	29·033	30·557	32·061	33·543		5¾
20·361	22·089	23·797	25·485	27·152	28·798	30·424	32·030	33·615	35·179		6
21·261	23·071	24·861	26·630	28·379	30·107	31·815	33·502	35·169	36·816		6¼
22·161	24·053	25·925	27·775	29·606	31·416	33·206	34·975	36·724	38·452		6½
23·061	25·035	26·988	28·921	30·833	32·725	34·597	36·447	38·278	40·088		6¾
23·961	26·016	28·052	30·066	32·061	34·034	35·988	37·920	39·833	41·724		7
24·861	26·998	29·115	31·211	33·288	35·343	37·378	39·393	41·387	43·361		7¼
25·761	27·980	30·179	32·357	34·515	36·652	38·769	40·865	42·942	44·997		7½
26·661	28·962	31·243	33·502	35·742	37·961	40·160	42·338	44·496	46·633		7¾
27·561	29·943	32·306	34·648	36·969	39·270	41·551	43·811	46·051	48·269		8
28·461	30·925	33·370	35·793	38·197	40·579	42·942	45·283	47·605	49·906		8¼
29·361	31·907	34·433	36·938	39·424	41·888	44·333	46·756	49·169	51·542		8½
30·261	32·889	35·497	38·084	40·651	43·197	45·723	48·228	50·714	53·178		8¾
31·161	33·870	36·560	39·229	41·878	44·506	47·114	49·701	52·268	54·814		9
32·061	34·852	37·624	40·374	43·105	45·815	48·505	51·174	53·823	56·451		9¼
32·961	35·834	38·688	41·520	44·333	47·124	49·896	52·646	55·377	58·087		9½
33·861	36·816	39·751	42·665	45·560	48·433	51·287	54·119	56·932	59·723		9¾
34·761	37·797	40·815	43·811	46·787	49·742	52·677	55·592	58·486	61·359		10
35·661	38·779	41·878	44·956	48·014	51·051	54·068	57·064	60·041	62·996		10¼
36·560	39·761	42·942	46·101	49·241	52·360	55·459	58·537	61·595	64·632		10½
37·460	40·743	44·005	47·247	50·469	53·669	56·850	60·009	63·150	66·268		10¾

under 1/4" add as under.

0·675	0·736	0·798	0·859	0·920	0·982	1·043	1·104	1·166	1·227	3/16
0·450	0·491	0·532	0·573	0·614	0·654	0·695	0·736	0·777	0·818	1/8
0·225	0·245	0·266	0·286	0·307	0·327	0·348	0·368	0·389	0·409	1/16

weights as above and add as under.

2·475	2·945	3·457	4·009	4·602	5·236	5·911	6·627	7·384	8·181	

multiply weight in lbs. per foot by 1·488.

THEORETICAL WEIGHTS

WEIGHT PER

Ext'l Diam. of Tubes.	Thicknesses of Tubes in Wire Gauges, and											
ins.	3/32" ·094	12 W.G ·104	7/64" ·109	11 W.G ·116	1/8" ·125	10 W.G ·128	9/64" ·141	9 W.G ·144	5/32" ·156	8 W.G ·160	11/64" ·172	
10	9·92	10·994	11·555	12·246	13·185	13·497	14·81	15·16	16·429	16·817	18·044	
11	10·922	12·105	12·724	13·485	14·52	14·864	16·312	16·698	18·098	18·526	19·879	
12	11·923	13·215	13·892	14·724	15·856	16·231	17·814	18·236	19·767	20·235	21·715	
13	12·924	14·326	15·06	15·963	17·191	17·599	19·316	19·774	21·436	21·944	23·551	
14	13·926	15·437	16·228	17·202	18·526	18·966	20·818	21·312	23·105	23·652	25·387	
15	14·927	16·548	17·397	18·441	19·861	20·333	22·32	22·85	24·774	25·362	27·223	
16	15·929	17·659	18·565	19·68	21·196	21·7	23·822	24·388	26·443	27·071	29·059	
17	16·93	18·77	19·733	20·919	22·532	23·067	25·325	25·926	28·112	28·78	30·895	
18	17·931	19·881	20·902	22·158	23·867	24·435	26·827	27·464	29·781	30·489	32·731	
19	18·933	20·992	22·07	23·397	25·202	25·802	28·329	29·002	31·45	32·198	34·567	
20	19·934	22·103	23·238	24·636	26·537	27·169	29·831	30·541	33·119	33·907	36·403	
21	20·936	23·213	24·407	25·875	27·872	28·536	31·333	32·079	34·788	35·616	38·238	
22	21·937	24·324	25·575	27·114	29·208	29·903	32·835	33·617	36·457	37·325	40·074	
23	22·939	25·435	26·743	28·353	30·543	31·271	34·337	35·155	38·126	39·034	41·91	
24	23·94	26·546	27·911	29·592	31·878	32·638	35·839	36·693	39·795	40·743	43·746	
25	24·941	27·657	29·08	30·831	33·213	34·005	37·341	38·231	41·464	42·452	45·582	
26	25·943	28·768	30·248	32·07	34·548	35·372	38·843	39·769	43·133	44·161	47·418	
27	26·944	29·879	31·416	33·309	35·884	36·739	40·346	41·307	44·802	45·87	49·254	
28	27·946	30·99	32·585	34·548	37·219	38·107	41·848	42·845	46·471	47·579	51·09	
29	28·947	32·101	33·753	35·787	38·554	39·474	43·35	44·383	48·14	49·288	52·926	
30	29·948	33·212	34·921	37·026	39·889	40·841	44·852	45·922	49·809	50·997	54·763	
31	30·95	34·322	36·09	38·265	41·224	42·208	46·354	47·46	51·478	52·706	56·597	
32	31·951	35·433	37·258	39·504	42·56	43·575	47·856	48·998	53·147	54·415	58·433	
33	32·953	36·544	38·426	40·743	43·895	44·943	49·358	50·536	54·816	56·124	60·269	
34	33·954	37·655	39·594	41·982	45·23	46·31	50·86	52·074	56·485	57·833	62·105	
35	34·955	38·766	40·763	43·221	46·565	47·677	52·362	53·612	58·154	59·542	63·941	
36	35·957	39·877	41·931	44·46	47·9	49·044	53·864	55·15	59·823	61·251	65·777	

For each additional inch or part of an inch

1	1·001	1·111	1·168	1·239	1·335	1·367	1·502	1·538	1·669	1·709	1·836
7/8	·876	·972	1·022	1·084	1·168	1·196	1·315	1·346	1·46	1·496	1·606
3/4	·75	·833	·876	·929	1·001	1·025	1·126	1·153	1·252	1·283	1·376
5/8	·625	·694	·73	·774	·834	·855	·94	·961	1·043	1·068	1·147
1/2	·5	·555	·584	·619	·668	·684	·751	·769	·834	·854	·918
7/16	·437	·486	·511	·542	·584	·598	·657	·673	·73	·748	·803
3/8	·375	·416	·438	·464	·501	·512	·563	·577	·626	·641	·688
5/16	·312	·347	·365	·387	·417	·427	·469	·481	·522	·534	·574
1/4	·25	·278	·292	·31	·334	·342	·375	·384	·417	·427	·459
3/16	·187	·208	·219	·232	·25	·256	·281	·288	·313	·32	·344
1/8	·125	·139	·146	·155	·167	·171	·188	·192	·209	·213	·229
1/16	·062	·069	·073	·077	·083	·085	·094	·096	·104	·107	·115

If Inside Diameter of Tube is given take

—	·188	·231	·256	·287	·334	·35	·422	·443	·522	·547	·631

OF STEEL TUBES.

FOOT IN LBS.

IN FRACTIONS AND DECIMALS OF AN INCH.										Ext'l Diam. of Tubes.
7 W.G ·176	$\frac{3}{16}$" ·187	6 W.G ·192	$\frac{13}{64}$" ·203	5 W.G ·212	$\frac{7}{32}$" ·219	4 W.G ·232	$\frac{15}{64}$" ·234	$\frac{1}{4}$" ·25	3 W.G ·252	ins.
18·468	19·653	20·114	21·256	22·165	22·855	24·206	24·448	26·036	26·239	10
20·348	21·655	22·165	23·426	24·429	25·192	26·684	26·952	28·707	28·93	11
22·228	23·658	24·216	25·596	26·694	27·528	29·162	29·455	31·377	31·622	12
24·108	25·661	26·267	27·765	28·958	29·865	31·64	31·959	34·048	34·314	13
25·988	27·664	28·317	29·935	31·223	32·201	34·119	34·462	36·718	37·006	14
27·868	29·667	30·368	32·105	33·487	34·538	36·597	36·966	39·388	39·697	15
29·748	31·669	32·419	34·275	35·752	36·875	39·075	39·469	42·059	42·389	16
31·627	33·672	34·469	36·444	38·016	39·211	41·553	41·973	44·729	45·081	17
33·507	35·675	36·521	38·614	40·281	41·548	44·031	44·476	47·4	47·772	18
35·387	37·678	38·571	40·784	42·545	43·884	46·509	46·98	50·07	50·464	19
37·267	39·681	40·622	42·953	44·81	46·221	48·987	49·483	52·74	53·156	20
39·147	41·683	42·673	45·123	47·074	48·558	51·465	51·986	55·411	55·847	21
41·027	43·686	44·724	47·293	49·339	50·894	53·943	54·49	58·081	58·539	22
42·907	45·689	46·775	49·462	51·603	53·231	56·421	56·994	60·752	61·231	23
44·787	47·692	48·825	51·632	53·868	55·567	58·9	59·497	63·422	63·923	24
46·667	49·695	50·876	53·802	56·132	57·904	61·378	62·001	66·093	66·614	25
48·547	51·697	52·927	55·972	58·397	60·241	63·856	64·504	68·763	69·306	26
50·426	53·7	54·978	58·141	60·661	62·577	66·334	67·008	71·433	71·998	27
52·306	55·703	57·029	60·311	62·926	64·914	68·812	69·511	74·104	74·689	28
54·186	57·706	59·08	62·481	65·29	67·25	71·29	72·015	76·774	77·381	29
56·066	59·709	61·13	64·65	67·455	69·587	73·768	74·518	79·444	80·073	30
57·946	61·711	63·181	66·52	69·719	71·924	76·246	77·022	82·115	82·764	31
59·826	63·714	65·232	68·99	71·984	74·26	78·724	79·525	84·785	85·456	32
61·706	65·717	67·283	71·159	74·248	76·597	81·202	82·029	87·456	88·146	33
63·586	67·72	69·333	73·329	76·513	78·933	83·681	84·532	90·126	90·84	34
65·466	69·723	71·384	75·499	78·777	81·27	86·159	87·036	92·796	93·531	35
67·346	71·725	73·435	77·669	81·042	83·607	88·637	89·539	95·467	96·223	36
on Outside Diameter add as under:—										
1·88	2·003	2·051	2·17	2·264	2·337	2·478	2·503	2·67	2·692	1
1·645	1·752	1·795	1·899	1·981	2·044	2·168	2·19	2·337	2·355	$\frac{1}{8}$
1·41	1·502	1·538	1·627	1·698	1·753	1·858	1·877	2·003	2·018	$\frac{1}{4}$
1·175	1·252	1·282	1·356	1·415	1·461	1·549	1·564	1·669	1·682	$\frac{3}{8}$
·94	1·001	1·025	1·085	1·132	1·168	1·239	1·252	1·335	1·346	$\frac{1}{2}$
·822	·876	·897	·949	·991	1·022	1·084	1·095	1·168	1·178	$\frac{5}{8}$
·705	·751	·769	·815	·849	·876	·929	·938	1·001	1·009	$\frac{3}{4}$
·587	·626	·641	·678	·708	·73	·774	·782	·834	·841	$\frac{7}{8}$
·47	·501	·513	·542	·566	·584	·619	·626	·668	·673	1
·352	·375	·384	·407	·424	·438	·465	·469	·5	·505	$1\frac{1}{8}$
·235	·25	·256	·271	·283	·292	·31	·313	·334	·336	$1\frac{1}{4}$
·117	·125	·128	·136	·141	·146	·155	·156	·167	·168	$1\frac{3}{8}$
weights as above and add as under:—										
·662	·751	·788	·881	·96	1·022	1·15	1·173	1·335	1·357	—

THEORETICAL WEIGHTS

WEIGHT PER

Ext'l Diam. of Tubes.	Thicknesses of Tubes in Wire Gauges, and									
	2 W.G	$\frac{3}{32}$″	1 W.G	$\frac{5}{16}$″	$\frac{11}{32}$″	$\frac{3}{8}$″	$\frac{13}{32}$″	$\frac{7}{16}$″	$\frac{15}{32}$″	$\frac{1}{2}$″
ins.	·276	·281	·3	·312	·344	·375	·406	·437	·469	·5
10	28·667	29·197	31·083	32·337	35·455	38·553	41·63	44·687	47·72	50·737
11	31·615	32·201	34·287	35·675	39·127	42·558	45·969	49·36	52·729	56·077
12	34·564	35·206	37·492	39·013	42·798	46·564	50·309	54·033	57·736	61·418
13	37·512	38·21	40·696	42·351	46·47	50·569	54·648	58·706	62·743	66·759
14	40·46	41·214	43·9	45·689	50·142	54·575	58·987	63·379	67·75	72·099
15	43·408	44·218	47·105	49·027	53·813	58·58	63·327	68·052	72·757	77·44
16	46·356	47·222	50·309	52·365	57·485	62·586	67·666	72·725	77·763	82·781
17	49·304	50·227	53·514	55·703	61·157	66·591	72·005	77·398	82·77	88·122
18	52·252	53·231	56·718	59·041	64·828	70·597	76·345	82·071	87·777	93·462
19	55·2	56·235	59·922	62·379	68·5	74·602	80·684	86·744	92·784	98·803
20	58·148	59·24	63·127	65·717	72·172	78·608	85·023	91·418	97·791	104·144
21	61·096	62·243	66·331	69·055	75·844	82·613	89·362	96·091	102·798	109·484
22	64·045	65·248	69·536	72·393	79·515	86·619	93·702	100·764	107·805	114·825
23	66·993	68·252	72·74	75·731	83·187	90·624	98·041	105·437	112·812	120·166
24	69·941	71·256	75·944	79·069	86·859	94·63	102·38	110·110	117·819	125·506
25	72·889	74·26	79·149	82·407	90·53	98·635	106·72	114·783	122·826	130·847
26	75·837	77·264	82·353	85·745	94·202	102·641	111·059	119·456	127·832	136·188
27	78·785	80·269	85·558	89·083	97·874	106·646	115·398	124·129	132·839	141·529
28	81·733	83·273	88·762	92·421	101·545	110·652	119·738	128·802	137·846	146·869
29	84·681	86·277	91·966	95·759	105·217	114·657	124·077	133·475	142·853	152·21
30	87·629	89·281	95·171	99·097	108·889	118·663	128·416	138·149	147·86	157·551
31	90·577	92·285	98·375	102·435	112·561	122·668	132·755	142·822	152·867	162·891
32	93·526	95·29	101·58	105·773	116·232	126·674	137·095	147·495	157·874	168·232
33	96·474	98·294	104·784	109·111	119·904	130·679	141·434	152·168	162·881	173·573
34	99·422	101·298	107·988	112·449	123·576	134·685	145·773	156·841	167·888	178·913
35	102·37	104·302	111·193	115·787	127·247	138·69	150·113	161·514	172·895	184·254
36	105·318	107·306	114·397	119·125	130·919	142·696	154·452	166·187	177·901	189·595
	For each additional inch or part of an inch									
1	2·948	3·004	3·204	3·338	3·672	4·006	4·339	4·673	5·007	5·341
$\frac{1}{2}$	2·58	2·629	2·804	2·921	3·213	3·505	3·797	4·089	4·381	4·673
$\frac{3}{8}$	2·211	2·253	2·403	2·503	2·754	3·004	3·254	3·505	3·755	4·005
$\frac{1}{4}$	1·842	1·878	2·003	2·086	2·295	2·503	2·712	2·921	3·129	3·338
$\frac{3}{16}$	1·474	1·502	1·602	1·669	1·836	2·003	2·17	2·337	2·503	2·67
$\frac{1}{8}$	1·29	1·314	1·402	1·46	1·606	1·752	1·898	2·044	2·19	2·336
$\frac{1}{16}$	1·106	1·127	1·202	1·252	1·377	1·502	1·627	1·752	1·877	2·003
$\frac{1}{32}$	·921	·939	1·001	1·043	1·147	1·252	1·356	1·46	1·565	1·669
$\frac{1}{64}$	·737	·751	·801	·834	·918	1·001	1·085	1·168	1·252	1·335
$\frac{1}{32}$	·553	·563	·601	·626	·688	·751	·814	·876	·939	1·001
$\frac{1}{64}$	·368	·376	·4	·417	·459	·501	·542	·584	·626	·668
$\frac{1}{16}$	·184	·188	·2	·209	·229	·25	·271	·292	·313	·334
	If Inside Diameter of Tube is given take									
—	1·627	1·69	1·923	2·086	2·524	3·004	3·526	4·089	4·694	5·341

STEWARTS and LLOYDS (Australia) Limited L&L

OF STEEL TUBES.

FOOT IN LBS.

IN FRACTIONS AND DECIMALS OF AN INCH										Ext'l Diam. of Tubes.
$\frac{17}{32}$″	$\frac{9}{16}$″	$\frac{19}{32}$″	$\frac{5}{8}$″	$\frac{11}{16}$″	$\frac{3}{4}$″	$\frac{13}{16}$″	$\frac{7}{8}$″	$\frac{15}{16}$″	1″	
·531	·562	·594	·625	·687	·75	·812	·875	·937	1·000	ins.
53·73	56·703	59·655	62·587	68·386	74·103	79·736	85·285	90·751	96·133	10
59·405	62·712	65·998	69·263	75·73	82·114	88·414	94·631	100·765	106·814	11
65·079	68·72	72·34	75·938	83·073	90·125	97·093	103·978	110·779	117·495	12
70·754	74·728	78·682	82·614	90·417	98·136	105·772	113·324	120·793	128·177	13
76·428	80·737	85·024	89·29	97·76	106·147	114·45	122·67	130·807	138·858	14
82·103	86·745	91·366	95·966	105·104	114·158	123·129	132·017	140·821	149·54	15
87·777	92·753	97·708	102·642	112·447	122·169	131·808	141·363	150·834	160·221	16
93·452	98·761	104·05	109·318	119·791	130·18	140·487	150·709	160·848	170·902	17
99·126	104·77	110·392	115·994	127·134	138·192	149·165	160·055	170·862	181·584	18
104·801	110·778	116·734	122·67	134·478	146·203	157·844	169·402	180·876	192·265	19
110·475	116·786	123·076	129·346	141·821	154·214	166·523	178·748	190·89	202·947	20
116·15	122·795	129·419	136·022	149·165	162·225	175·201	188·094	200·904	213·628	21
121·824	128·803	135·761	142·697	156·508	170·236	183·88	197·441	210·918	224·309	22
127·499	134·811	142·103	149·373	163·852	178·247	192·559	206·787	220·932	234·991	23
133·173	140·82	148·445	156·049	171·195	186·258	201·237	216·133	230·946	245·672	24
138·848	146·828	154·787	162·725	178·539	194·269	209·916	225·48	240·96	256·354	25
144·522	152·836	161·129	169·401	185·882	202·286	218·595	234·826	250·973	267·035	26
150·197	158·844	167·471	176·077	193·226	210·291	227·274	244·172	260·987	277·716	27
155·871	164·853	173·813	182·753	200·569	218·303	235·952	253·518	271·001	288·398	28
161·546	170·861	180·155	189·429	207·913	226·314	244·631	262·865	281·015	299·079	29
167·22	176·869	186·497	196·105	215·256	234·325	253·31	272·211	291·029	309·761	30
172·895	182·878	192·84	202·781	222·6	242·336	261·988	281·557	301·043	320·442	31
178·569	188·886	199·182	209·456	229·943	250·347	270·667	290·904	311·057	331·123	32
184·244	194·894	205·524	216·132	237·287	258·358	279·346	300·25	321·071	341·805	33
189·918	200·903	211·866	222·808	244·63	266·369	288·024	309·596	331·085	352·486	34
195·593	206·911	218·208	229·484	251·974	274·38	296·703	318·943	341·099	363·168	35
201·267	212·919	224·55	236·16	259·317	282·391	305·382	328·289	351·112	373·849	36

on Outside Diameter add as under:—

5·674	6·008	6·342	6·676	7·343	8·011	8·679	9·346	10·014	10·681	1
4·965	5·257	5·549	5·841	6·426	7·01	7·594	8·178	8·762	9·346	½
4·256	4·506	4·756	5·007	5·508	6·008	6·509	7·01	7·51	8·011	¼
3·547	3·755	3·964	4·172	4·59	5·007	5·424	5·841	6·259	6·676	⅛
2·837	3·004	3·171	3·338	3·672	4·006	4·339	4·673	5·007	5·341	1/16
2·483	2·628	2·774	2·921	3·213	3·505	3·797	4·089	4·381	4·673	1/32
2·128	2·253	2·378	2·503	2·754	3·004	3·254	3·505	3·755	4·005	1/64
1·773	1·877	1·982	2·086	2·295	2·503	2·712	2·921	3·129	3·338	1/128
1·419	1·502	1·585	1·669	1·836	2·003	2·17	2·337	2·503	2·67	1/256
1·064	1·126	1·189	1·252	1·377	1·502	1·627	1·752	1·877	2·003	1/512
·709	·751	·793	·834	·918	1·001	1·085	1·168	1·252	1·335	1/1024
·355	·375	·396	·417	·459	·501	·542	·584	·626	·668	1/2048

weights as above and add as under :—

6·029	6·759	7·531	8·345	10·097	12·017	14·103	16·356	18·776	21·363	—

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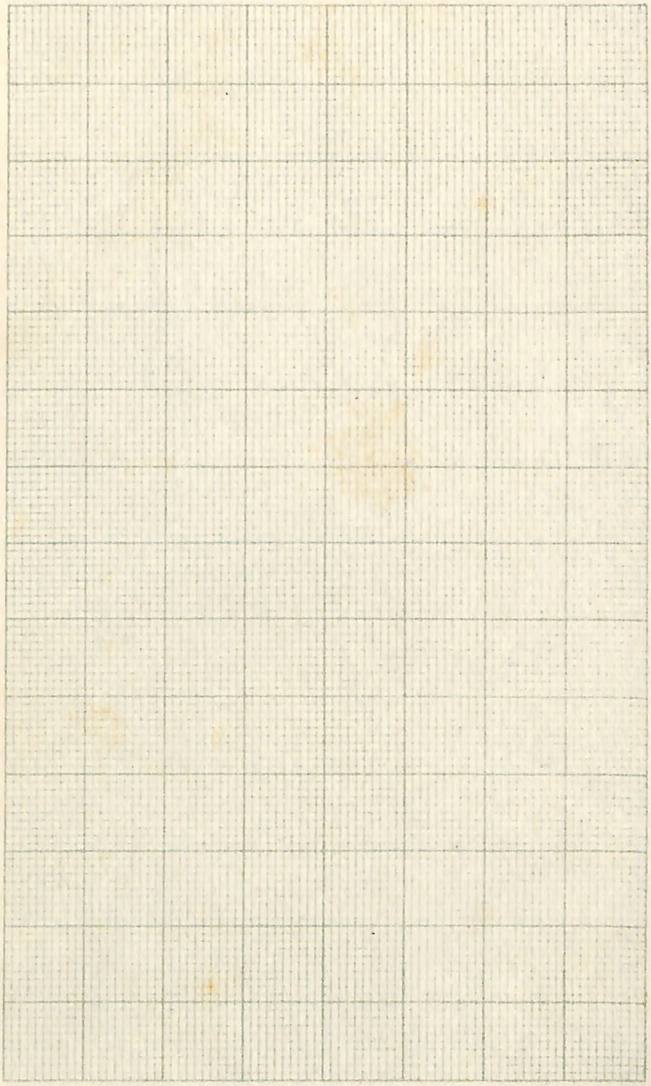

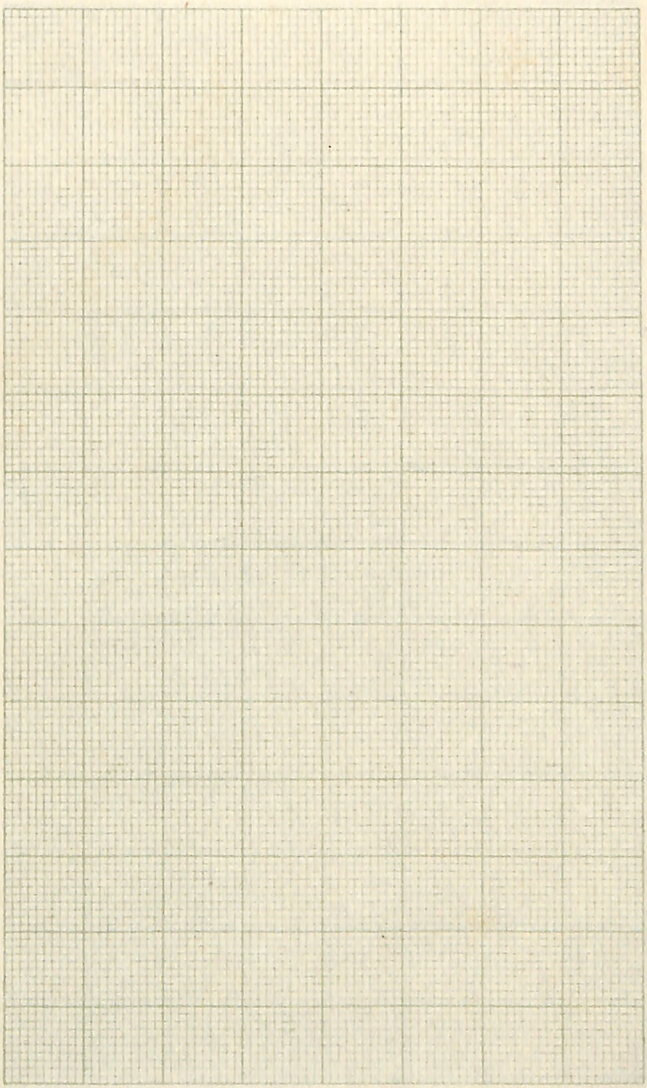

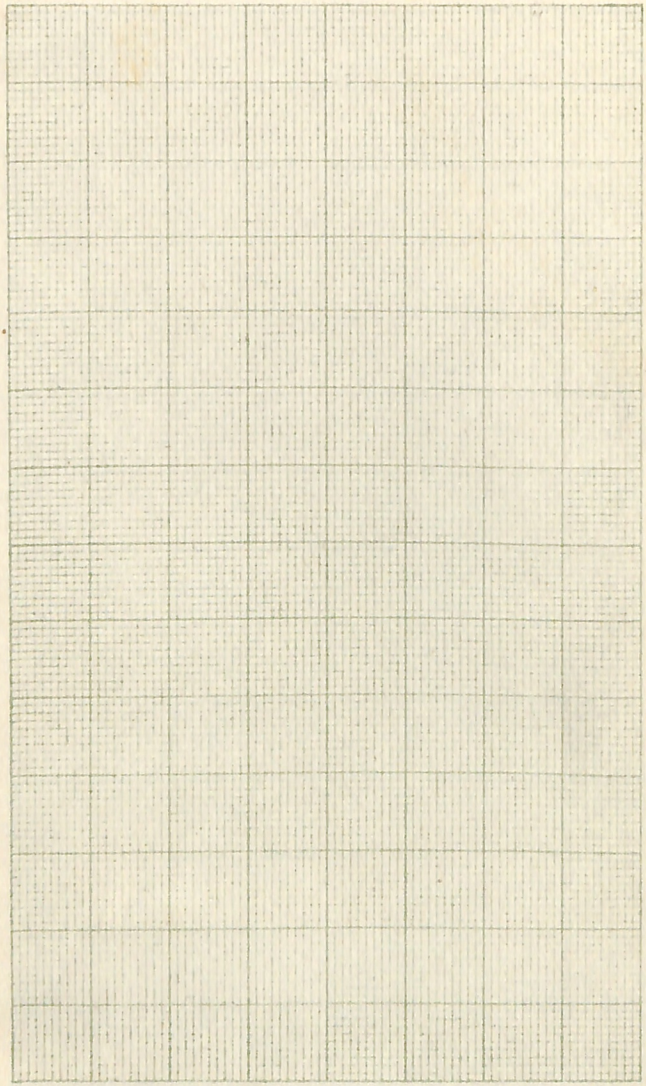

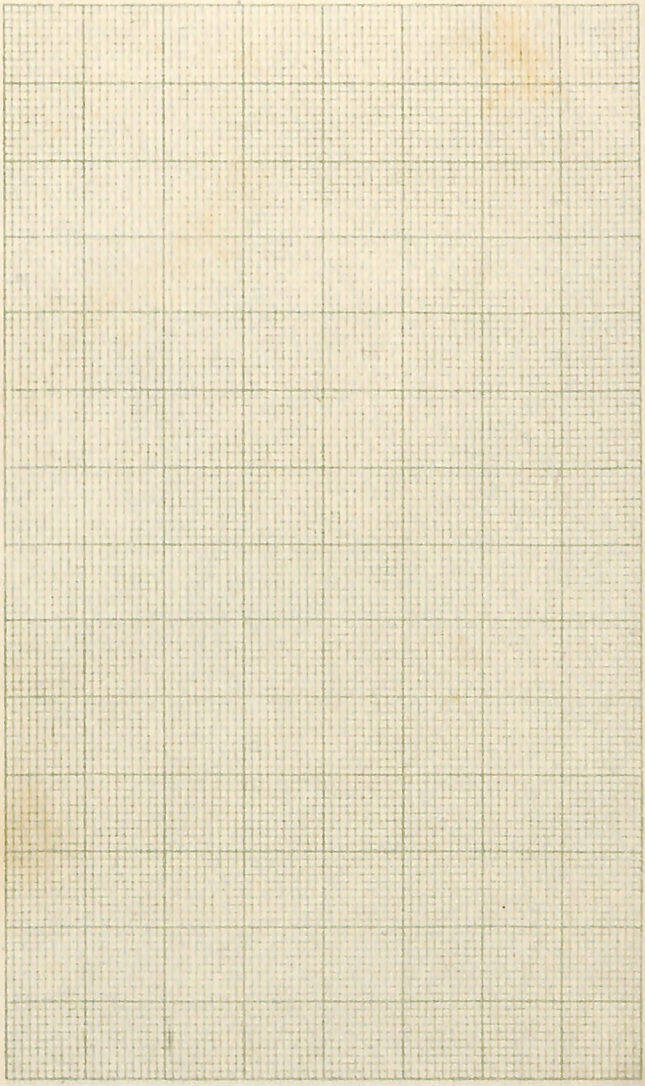

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